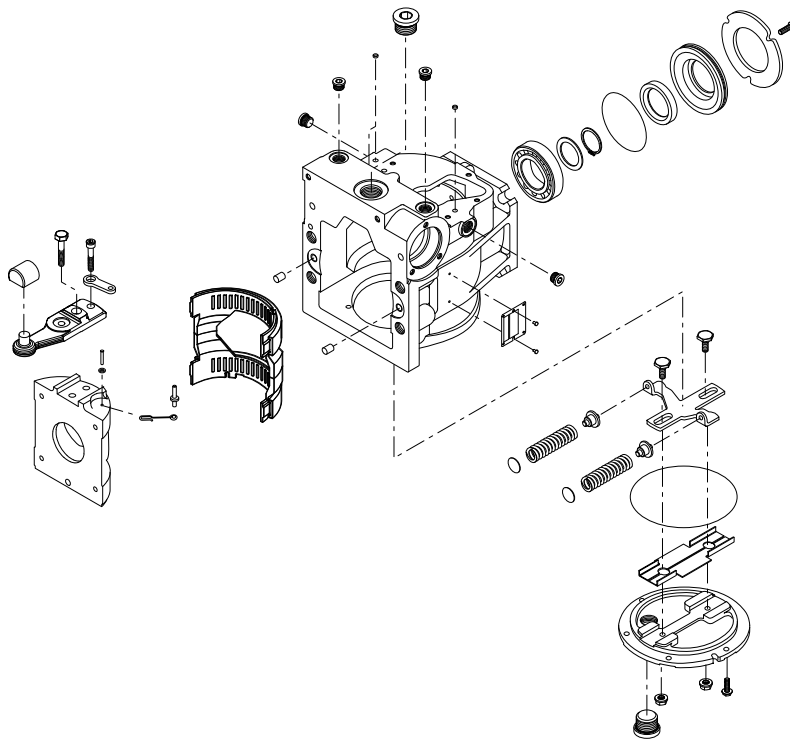


Parts Manual

# Series 90

## 100cc Axial Piston Pump



**Revision history**

*Table of revisions*

<b>Date</b>	<b>Changed</b>	<b>Rev</b>
June 2020	Corrected lip seal and seal carrier assembly part numbers; changed document number from 'AX00000093'	0311
January 2020	Corrected filter description for filtration option 9	0209
July 2019	Corrected control part numbers	0208
November 2018	Obsoleted screw part numbers in charging system	0207
September 2018	Removed old part number from common parts section	0206
February 2018	Removed part number from seal kit	0205
January 2018	Fixed typo	0204
December 2017	Updated to Engineering Tomorrow	0203

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## General Information

### Service Parts Identification

The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the .

The parts listed include all parts which may be used when performing either “Minor Repairs”, “Major Repairs” or “Conversions” on the .

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate will include the following information:

#### Model Code

The Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

#### Model Number

The Danfoss model number is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.

#### Serial Number

The Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly).

The first number (2 digits) indicates the year of manufacture. The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.



## General Information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

*Example: The service part desired is item G30*

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
80	G30	89-17		8000243	End cap gasket	1
	G30		89-16	8000151	End cap gasket (SB-1995-006)	1

All units using this order code with a date code prior to 89-17 must use part number "8000151." All units with a date code of 89-17 and newer must use part number "8000243."

### About service bulletins

A Service Bulletin Number (SB-\_\_\_\_-\_\_\_\_) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you receive them.

### Procedure to identify a part

The modular design of this product results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. A part number that has another number following it in parentheses is done to make this a world wide manual.

### Regional part numbers

Some part numbers are region specific and should be ordered accordingly.

As an example, the part number (example: 314583 (9008000-0118)) will be used. The first number is sold in Germany. The number in parentheses is sold in the United States. Customers would order 9008000-0118 if ordering the part in the United States.

### Example of a part identification (S90 100cc)

The nameplate on a Series 90 pump has an Order Code of 90L100 EP 1 CD 60 P 3 F1 D 03 GBA 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

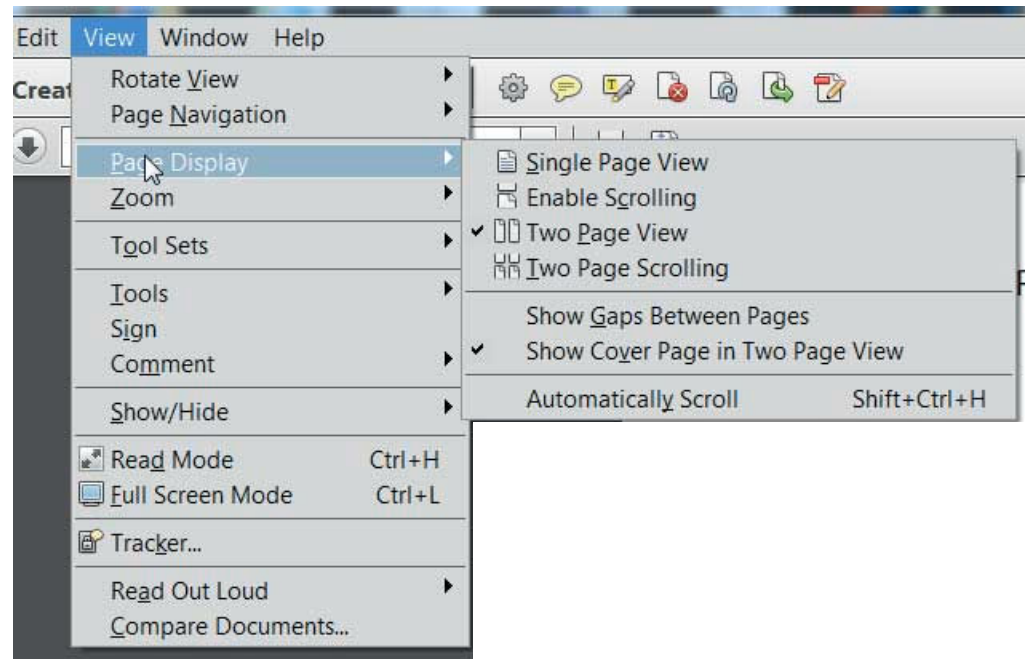
1. Referring to the input shaft module in the [Order Code](#), the input shaft option for this pump is identified by the code "S1. (90L100 EP 1 CD 60 P 3 F1 D 03 GBA 35 35 24).
2. Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "F1". The shaft is found to be item L100 and part number 8200170.

## General Information

### Adobe Acrobat 2-page viewing

While viewing manual in Adobe Acrobat, the following settings need to be applied to ensure proper page display.

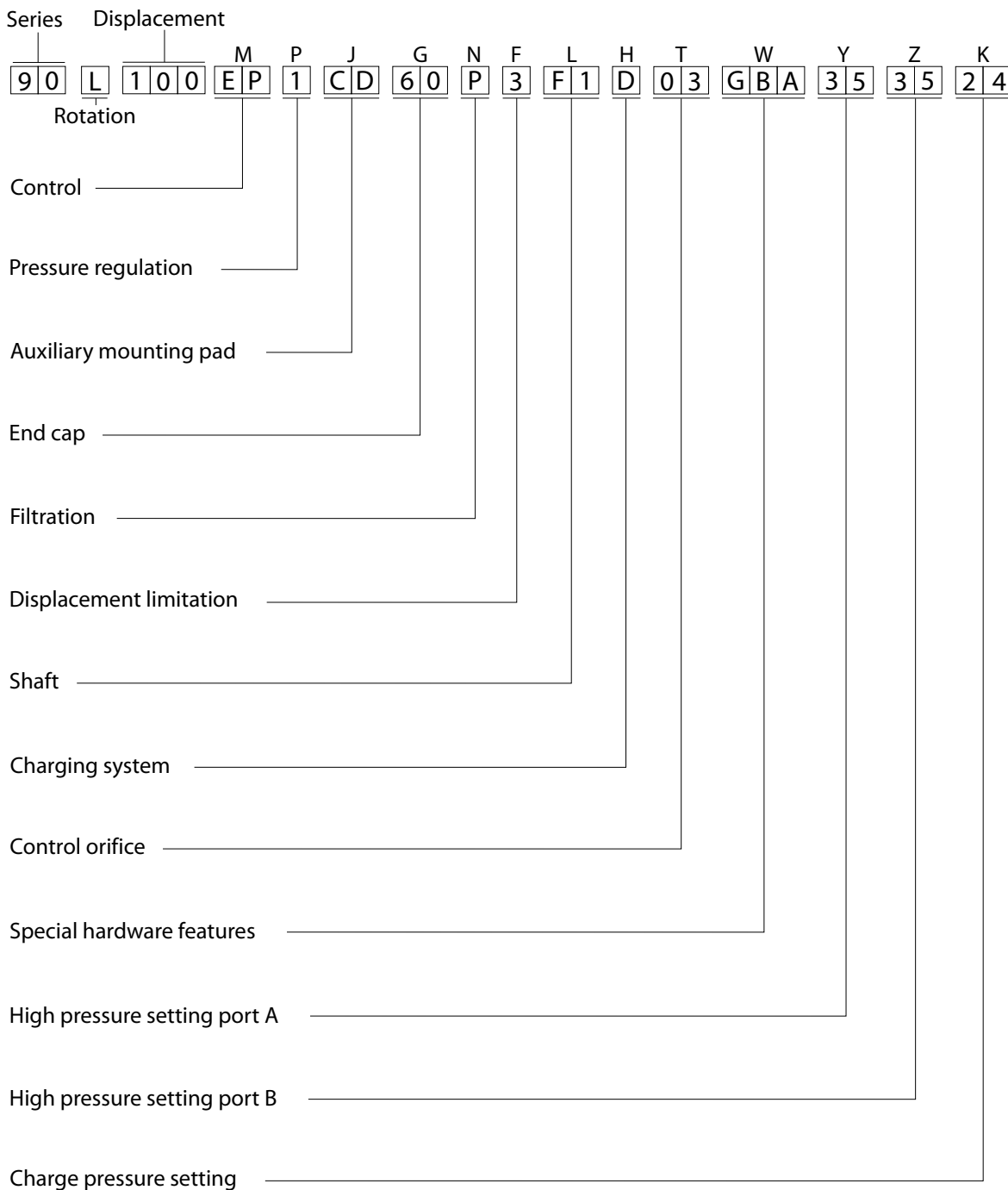
1. Select "View" → "Page Display" → "Two Page View"
2. Select "View" → "Page Display" → "Show Cover Page in Two Page View"





**General Information**

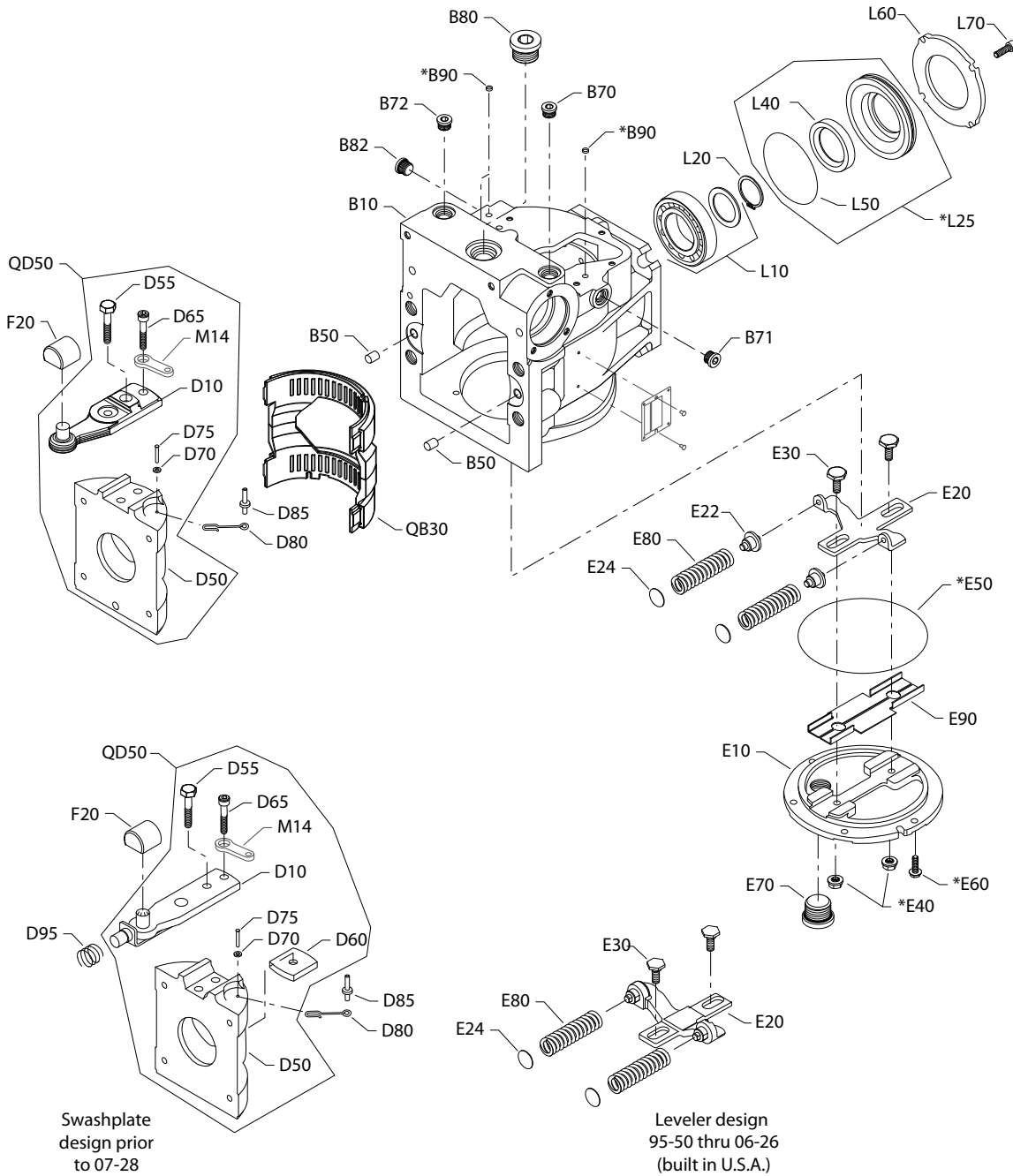
**Order code**



**Common parts and special hardware**

**S90 100cc pump common parts**

*Parts configuration*



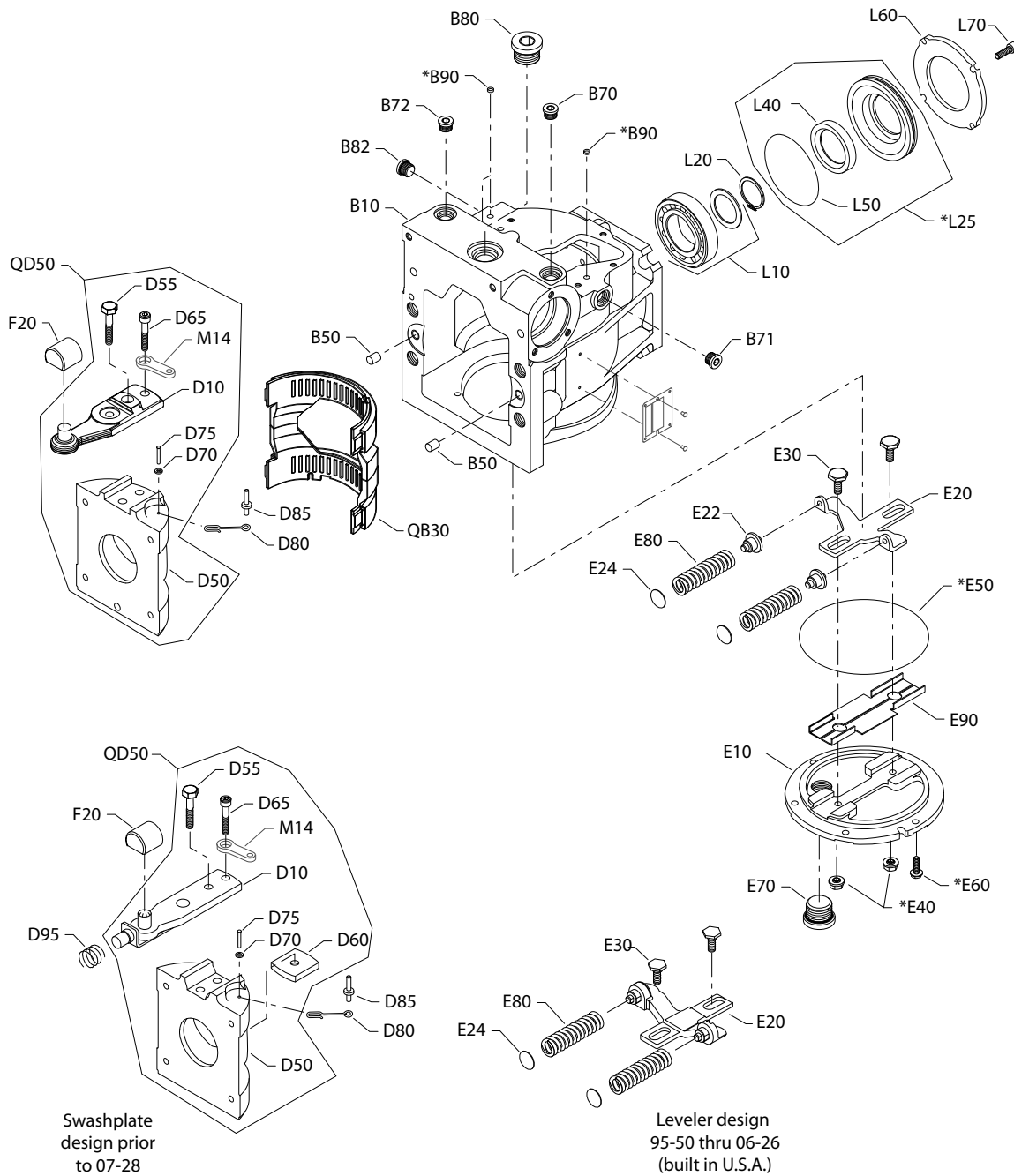
\* Included in base pump seal kit Q210

**Common parts and special hardware**

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B10	07-28		11002463	Housing ( <a href="#">SB-1994-035</a> on page 281 & <a href="#">SB-2007-018</a> on page 311)	1
B50	87-02		9004800-3708	Pin	2
B70	87-02		140644 (9005110-5600)	Plug assembly	1
B71	87-02		327007 (9005110-4400)	Plug assembly	1
B72	87-02		140644 (9005110-5600)	Plug assembly	1
B80	87-02		664524 (9005110-9000)	Plug assembly	1
B82	92-19		140644 (9005110-5600)	Plug assembly ( <a href="#">SB-1992-003</a> on page 270)	1
B90	87-02		9803390	Control filter screen	3
D10	07-29		521607	Servo arm assembly ( <a href="#">SB-2007-018</a> on page 311)	1
D10	87-02	07-28	8200268	Servo arm assembly ( <a href="#">SB-1993-015</a> on page 276)	1
D50	07-29		11002493	Swashplate ( <a href="#">SB-2007-018</a> on page 311)	1
D50	88-16	07-28	8200232	Swashplate ( <a href="#">SB-1988-009</a> on page 257)	1
D55	07-29		519150	Screw ( <a href="#">SB-2007-018</a> on page 311)	1
D55	87-02	07-28	9007276-0111	Screw	1
D60	87-02	07-28	8800669	Swashplate guide ( <a href="#">SB-2007-018</a> on page 311)	1
D65	07-29		9007375-0044	Screw ( <a href="#">SB-2007-018</a> on page 311)	1
D65	87-02	07-28	9007375-0032	Screw ( <a href="#">SB-1992-011</a> on page 272)	1
D70	87-02		9009625-0146	Washer	1
D75	87-02		9004875-0098	Spiral head pin	1
D80	87-02		673038 (8200273)	Cage locator link ( <a href="#">SB-1994-017</a> on page 278)	1
D85	87-02		8801235	Pin ( <a href="#">SB-1998-018</a> on page 290 & <a href="#">SB-1999-057</a> on page 301)	1
D95	87-02	07-28	673145 (8200058)	Spring ( <a href="#">SB-2007-018</a> on page 311)	1
E10	07-29		11000790	Side cover ( <a href="#">SB-2007-018</a> on page 311)	1
E10	95-50	07-28	501574	Side cover	1
E10	92-12	95-49	8510204	Side cover ( <a href="#">SB-1995-025</a> on page 285, <a href="#">SB-1997-048</a> on page 288, <a href="#">SB-1998-070</a> on page 296)	1
E10	87-02	92-11	8510132	Side cover ( <a href="#">SB-1992-003</a> on page 270)	1
E20	06-27		11042019	Leveler	1
E20	95-50	06-26	8200393	Leveler ( <a href="#">SB-1998-070</a> on page 296)	1
E20	92-12	95-49	8510204	Leveler ( <a href="#">SB-1998-070</a> on page 296)	1
E20	87-02	92-11	8510132	Leveler ( <a href="#">SB-1989-003</a> on page 264 & <a href="#">SB-1998-070</a> on page 296)	1

[Part numbers are continued on the next 2 pages.](#)

**Common parts and special hardware**



\* Included in base pump seal kit Q210

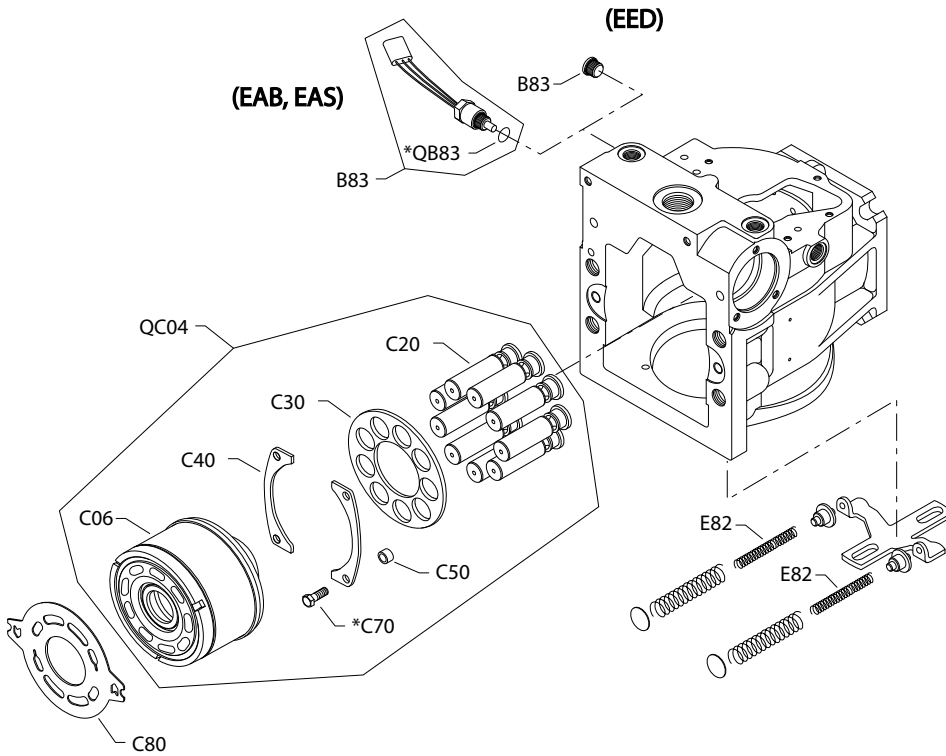
### Common parts and special hardware

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
E22	06-27		517936	Spring seat	2
E22	95-50	06-26	none	Spring seat	0
E22	92-12	95-49	8510204	Spring seat replacement kit ( <a href="#">SB-1998-070</a> on page 296)	2
E22	87-02	92-11	8510132	Spring seat replacement kit ( <a href="#">SB-1998-070</a> on page 296)	2
E24	87-02		8801225	Shim ( <a href="#">SB-1989-003</a> on page 264 & <a href="#">SB-2000-041</a> on page 306)	2
E30	09-52		11056531	Guide post ( <a href="#">SB-1998-070</a> on page 296 & <a href="#">SB-2009-073</a> on page 322)	2
E30	92-12	97-46	8510204	Guide post replacement kit ( <a href="#">SB-1997-048</a> on page 288)	2
E30	87-02	92-11	8510132	Guide post replacement kit ( <a href="#">SB-1998-070</a> on page 296)	2
E40	87-02		505412 (9003509-0008)	Seal nut	2
E50	87-02		517378 (9004104-1620)	O-ring	1
E60	87-02		517228 (5000206)	Screw ( <a href="#">SB-1994-018</a> on page 279)	6
E70	87-02		664524 (9005110-9000)	Plug assembly	1
E80	87-02		334979 (11062690)	Spring	2
E90	95-50		513889	Insert assembly ( <a href="#">SB-1995-025</a> on page 285 & <a href="#">SB-1999-041</a> on page 299)	1
F20	88-16		11116312	Slider block ( <a href="#">SB-1988-009</a> on page 257, <a href="#">SB-2009-049</a> on page 321 & <a href="#">SB-2015-005</a> on page 325)	1
L10	87-02		5000506	Roller bearing	1
L20	87-02		9006300-0175	Retaining ring	1
L25	87-02		521722	Seal carrier assembly ( <a href="#">SB-2007-018</a> on page 311)	1
L40	07-29		519021	Lip seal ( <a href="#">SB-2007-018</a> on page 311)	1
L50	87-02		327627 (9004104-1540)	O-ring	1
L60	87-02		516768	Retainer plate	1
L70	87-02		041160 (9007314-0605)	Screw	4
QB30	07-29		11131109	Cradle bearing assembly ( <a href="#">SB-2007-018</a> on page 311)	1
QB30	87-02	07-28	305839 (8200053)	Cradle bearing assembly	1
QD50	07-29		8200618	Swashplate assembly ( <a href="#">SB-2007-018</a> on page 311)	1
QD50	88-16	07-28	346155 (8200192)	Swashplate assembly ( <a href="#">SB-1988-009</a> on page 257)	1

**Common parts and special hardware**

**S90 100cc pump special hardware EAB, EAS, EED**

*EAB, EAS, EED parts configuration*




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Generic speed sensor used to show part location only.

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\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
QB83	98-14		085043 (9004201-3700)	O-ring	1

### Order code: EAB

B83	94-14		KPPG12508	Speed sensor	1
C06	94-14		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	94-14		518929	Valve plate	1
E82	94-14		356576 (11062702)	Spring	2
QC04	94-14		8510371	Cylinder block kit, with speed ring	1

### Order code: EAS

B83	98-14		KPPG12508	Speed sensor	1
C06	98-14		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	98-14		518929	Valve plate	1
E82	98-14		356576 (11062702)	Spring	2
QC04	98-14		8510371	Cylinder block kit, with speed ring	1

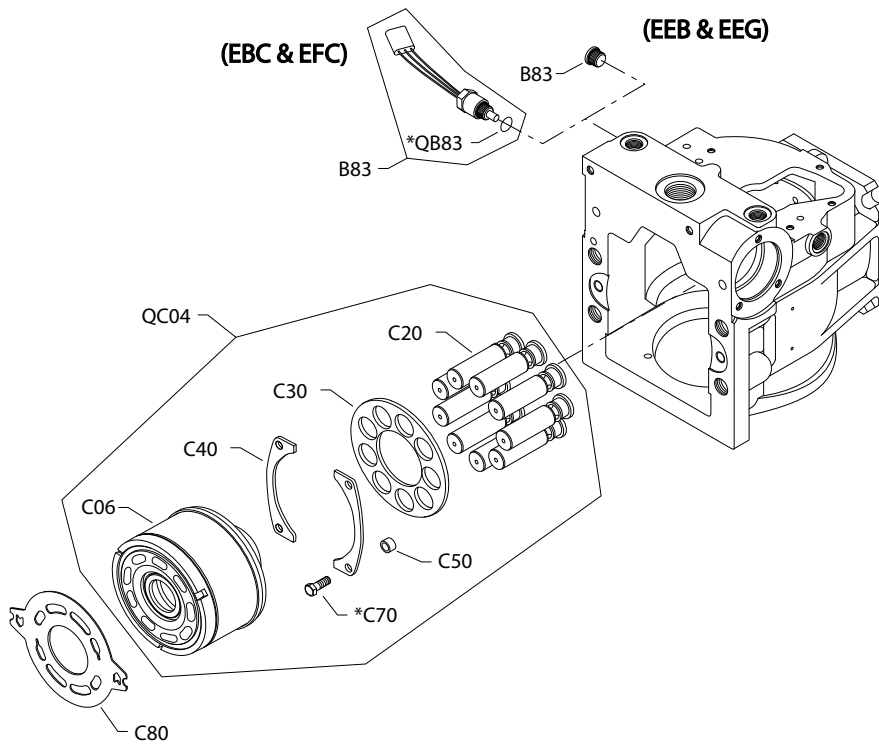
### Order code: EED

B83	99-17		140644 (9005110-5600)	Plug assembly	1
C06	99-17		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	99-17		518929	Valve plate	1
E82	99-17		356576 (11062702)	Spring	2
QC04	99-17		8510371	Cylinder block kit, with speed ring	1

**Common parts and special hardware**

**S90 100cc pump special hardware EBC, EFC, EEB, EEG**

*EBC, EEB, EEG, EFC parts configuration*



Generic speed sensor used to show part location only.

\* Included in base pump seal kit Q210



## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
QB83	98-14		085043 (9004201-3700)	O-ring	1

### Order code: EBC

B83	98-14		KPPG13408	Speed sensor	1
C06	94-14		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	94-14		518806	Valve plate	1
QC04	94-14		8510371	Cylinder block kit, with speed ring	1

### Order code: EEB

B83	06-05		140644 (9005110-5600)	Plug assembly	1
C06	06-05		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	06-05		518806	Valve plate	1
QC04	06-05		8510371	Cylinder block kit, with speed ring	1

### Order code: EEG

B83	00-13		140644 (9005110-5600)	Plug assembly	1
C06	00-13		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	00-13		518931	Valve plate, CCW	1
C80	00-13		518930	Valve plate, CW	1
E82	00-13		356576 (11062702)	Spring	2
QC04	00-13		8510371	Cylinder block kit, with speed ring	1

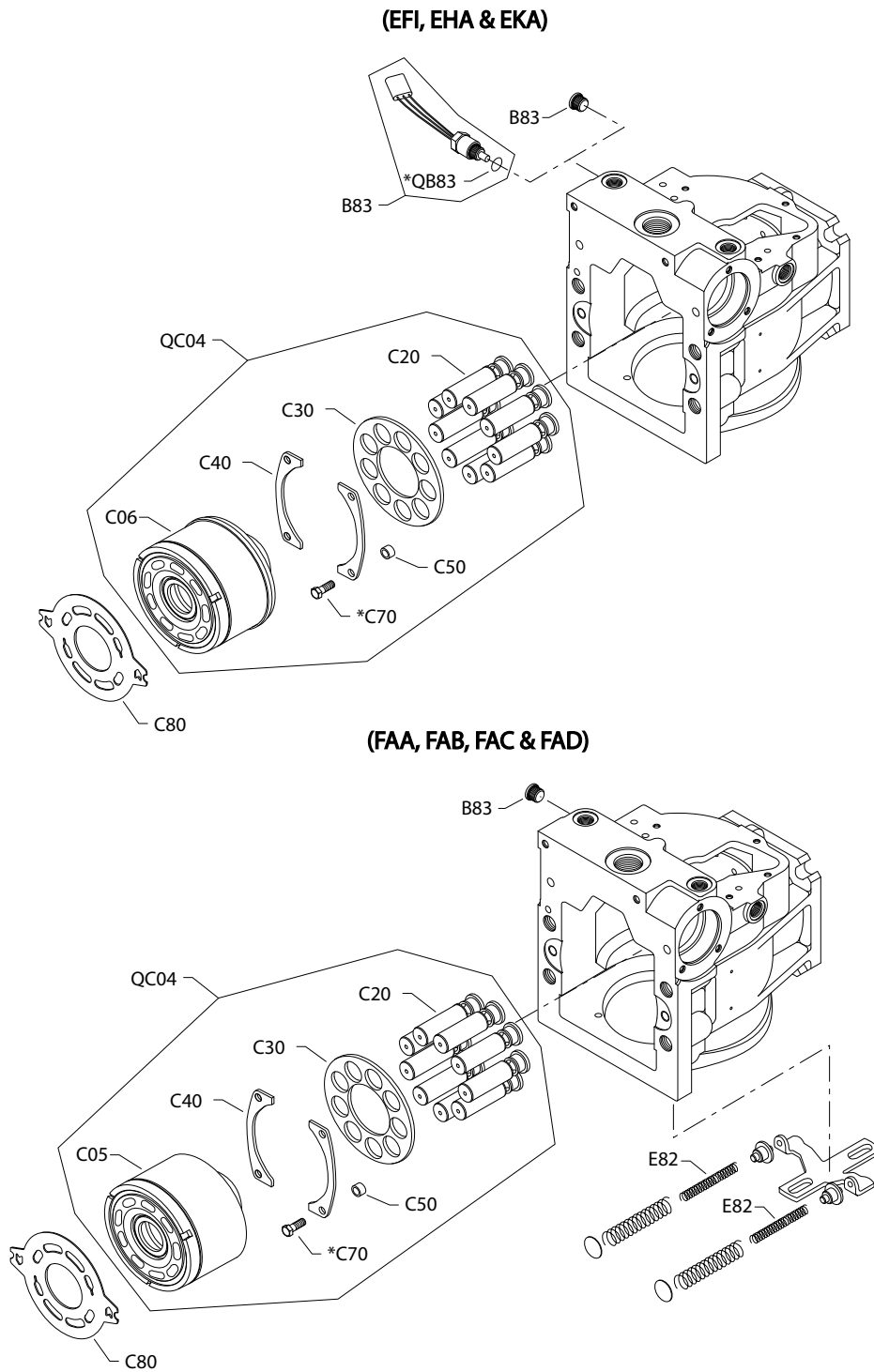
### Order code: EFC

B83	03-43		KPPG156	Speed sensor	1
C06	03-43		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	03-43		518806	Valve plate	1
QC04	03-43		8510371	Cylinder block kit, with speed ring	1

**Common parts and special hardware**

**S90 100cc pump special hardware EFI-EKA, FAA-FAD**

*Parts configuration*



Generic speed sensor shown

\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: EFI

B83	98-12		KPPG156	Speed sensor	1
C06	98-12		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	98-12		518931	Valve plate, CCW	1
C80	98-12		518930	Valve plate, CW	1
QC04	98-12		8510371	Cylinder block kit, with speed ring	1

### Order code: EHA

B83	00-42		KPPG16408	Speed sensor	1
C06	00-42		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	00-42		518806	Valve plate	1
QC04	00-42		8510371	Cylinder block kit, with speed ring	1

### Order code: EKA

B83	99-31		KPPG16719	Speed sensor	1
C06	99-31		11093925 (11012435)	Cylinder block assembly, with speed ring	1
C80	99-31		518806	Valve plate	1
QC04	99-31		8510371	Cylinder block kit, with speed ring	1

### Order code: FAA

B83	87-02		140644 (9005110-5600)	Plug assembly	1
C05	87-02		519257 (11012434)	Cylinder block assembly	1
C80	87-02		518994	Valve plate	1
E82	87-02		356576 (11062702)	Spring	2
QC04	87-02		8510372	Cylinder block kit	1

### Order code: FAB

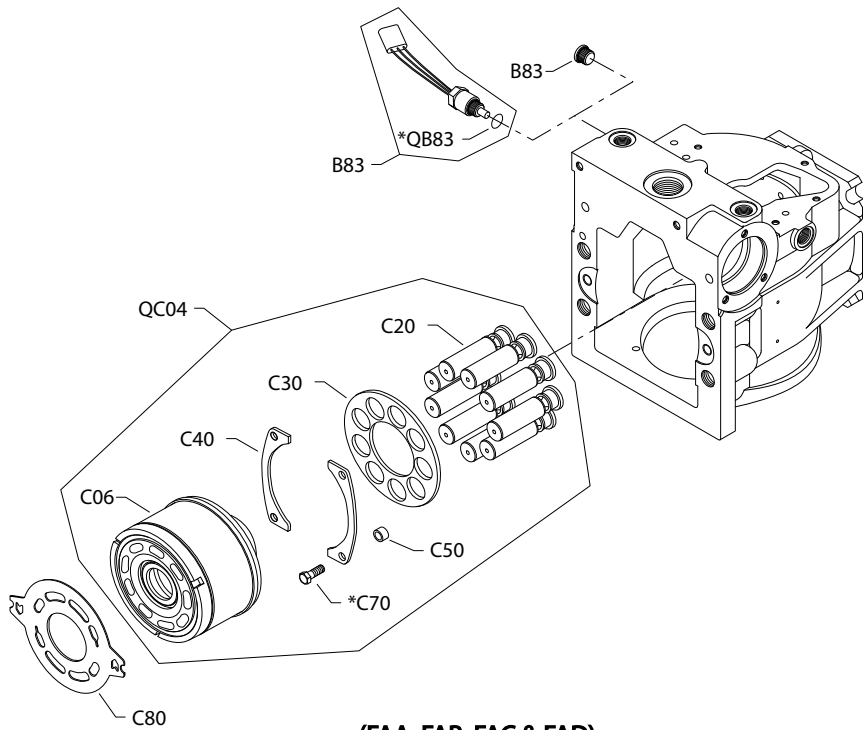
B83	87-02		140644 (9005110-5600)	Plug assembly	1
C05	87-02		519257 (11012434)	Cylinder block assembly	1
C80	87-02		518927	Valve plate	1
E82	87-02		356576 (11062702)	Spring	2
QC04	87-02		8510372	Cylinder block kit	1

[Part numbers continue to the next 2 pages.](#)

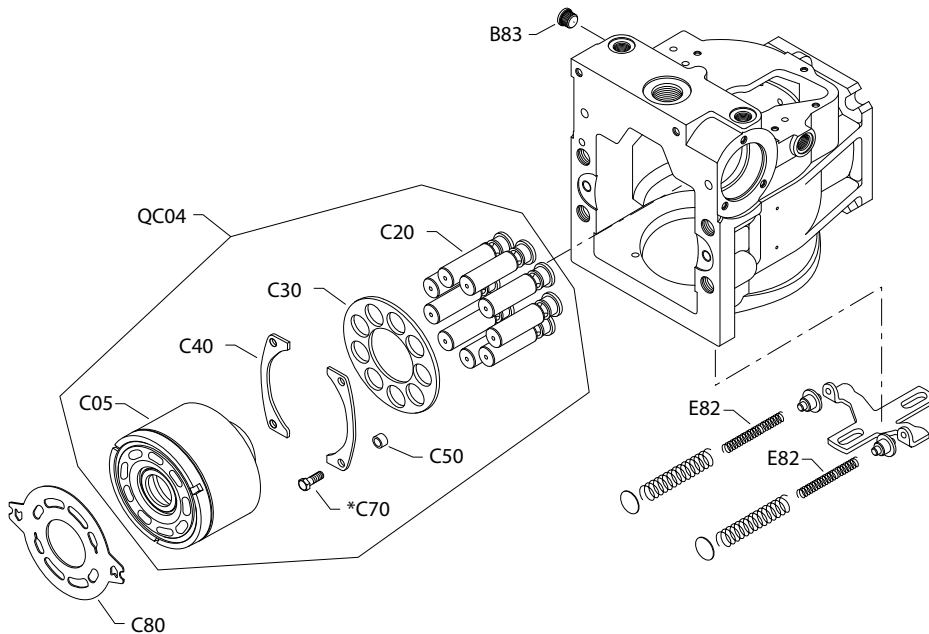
**Common parts and special hardware**

*Parts configuration*

**(EFI, EHA & EKA)**



**(FAA, FAB, FAC & FAD)**



Generic speed sensor shown

\* Included in base pump seal kit Q210

**Common parts and special hardware**

*Order code: FAC*

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	87-02		140644 (9005110-5600)	Plug assembly	1
C05	87-02		519257 (11012434)	Cylinder block assembly	1
C80	87-02		518929	Valve plate	1
E82	87-02		356576 (11062702)	Spring	2
QC04	87-02		8510372	Cylinder block kit	1

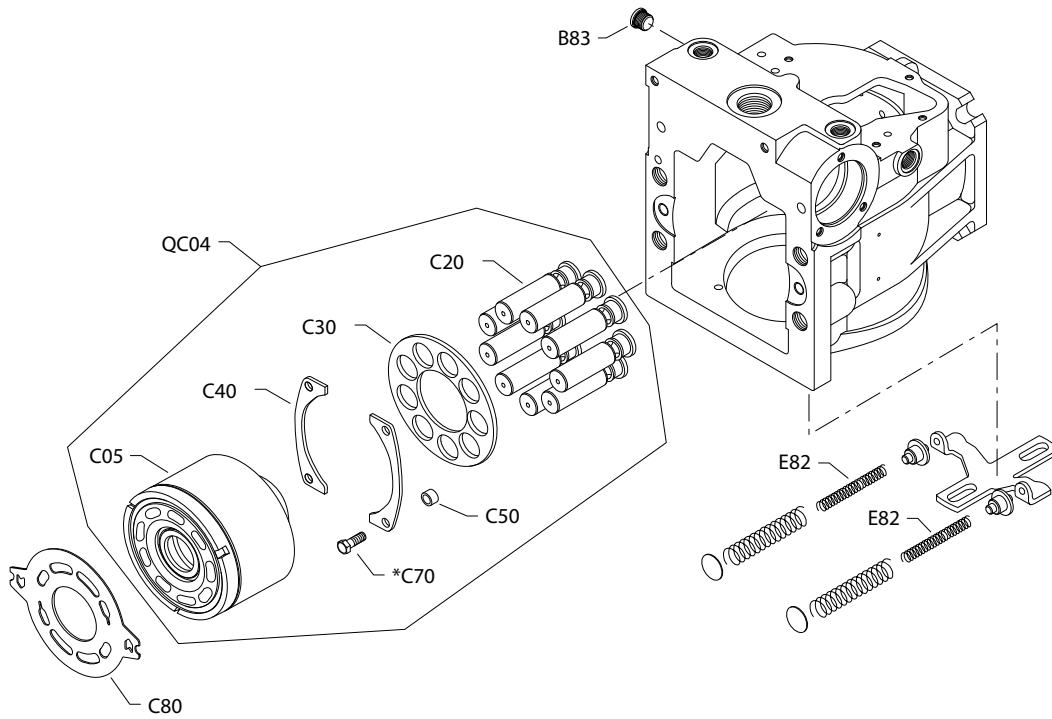
*Order code: FAD*

B83	87-02		140644 (9005110-5600)	Plug assembly	1
C05	87-02		519257 (11012434)	Cylinder block assembly	1
C80	87-02		518806	Valve plate	1
E82	87-02		356576 (11062702)	Spring	2
QC04	87-02		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware FAL-FAU**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: FAL

B83	95-04		140644 (9005110-5600)	Plug assembly	1
C05	95-04		519257 (11012434)	Cylinder block assembly	1
C80	95-04		518927	Valve plate	1
E82	95-04		356576 (11062702)	Spring	2
QC04	95-04		8510372	Cylinder block kit	1

### Order code: FAN

B83	13-41		140644 (9005110-5600)	Plug assembly	1
C05	13-41		519257 (11012434)	Cylinder block assembly	1
C80	13-41		518927	Valve plate	1
E82	13-41		356576 (11062702)	Spring	2
QC04	13-41		8510372	Cylinder block kit	1

### Order code: FAP

B83	06-03		140644 (9005110-5600)	Plug assembly	1
C05	06-03		519257 (11012434)	Cylinder block assembly	1
C80	06-03		518931	Valve plate, CCW	1
C80	06-03		518930	Valve plate, CW	1
E82	06-03		356576 (11062702)	Spring	2
QC04	06-03		8510372	Cylinder block kit	1

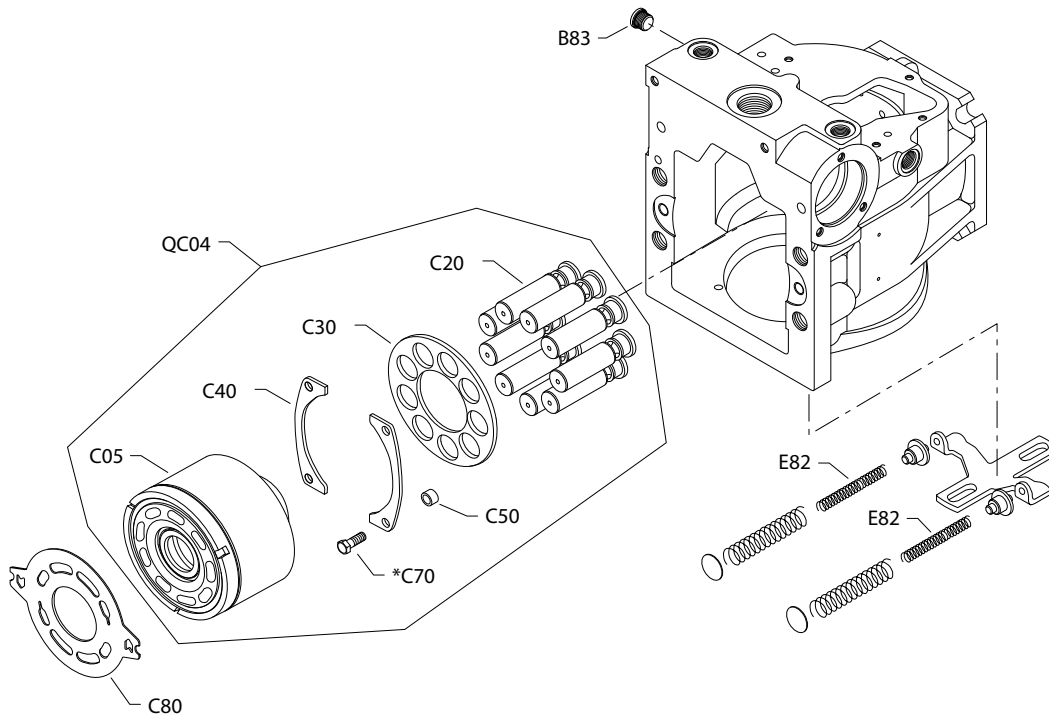
### Order code: FAQ

B83	12-36		140644 (9005110-5600)	Plug assembly	1
C05	12-36		519257 (11012434)	Cylinder block assembly	1
C80	12-36		518930	Valve plate	1
E82	12-36		356576 (11062702)	Spring	2
QC04	12-36		8510372	Cylinder block kit	1

[Part numbers continue to the next 2 pages.](#)

### Common parts and special hardware

#### Parts configuration



\* Included in base pump seal kit Q210



### Common parts and special hardware

Order code: FAR

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	95-39		140644 (9005110-5600)	Plug assembly	1
C05	95-39		519257 (11012434)	Cylinder block assembly	1
C80	95-39		510720	Valve plate	1
E82	95-39		356576 (11062702)	Spring	2
QC04	95-39		8510372	Cylinder block kit	1

Order code: FAS

B83	97-03		140644 (9005110-5600)	Plug assembly	1
C05	97-03		519257 (11012434)	Cylinder block assembly	1
C80	97-03		518929	Valve plate	1
E82	97-03		356576 (11062702)	Spring	2
QC04	97-03		8510372	Cylinder block kit	1

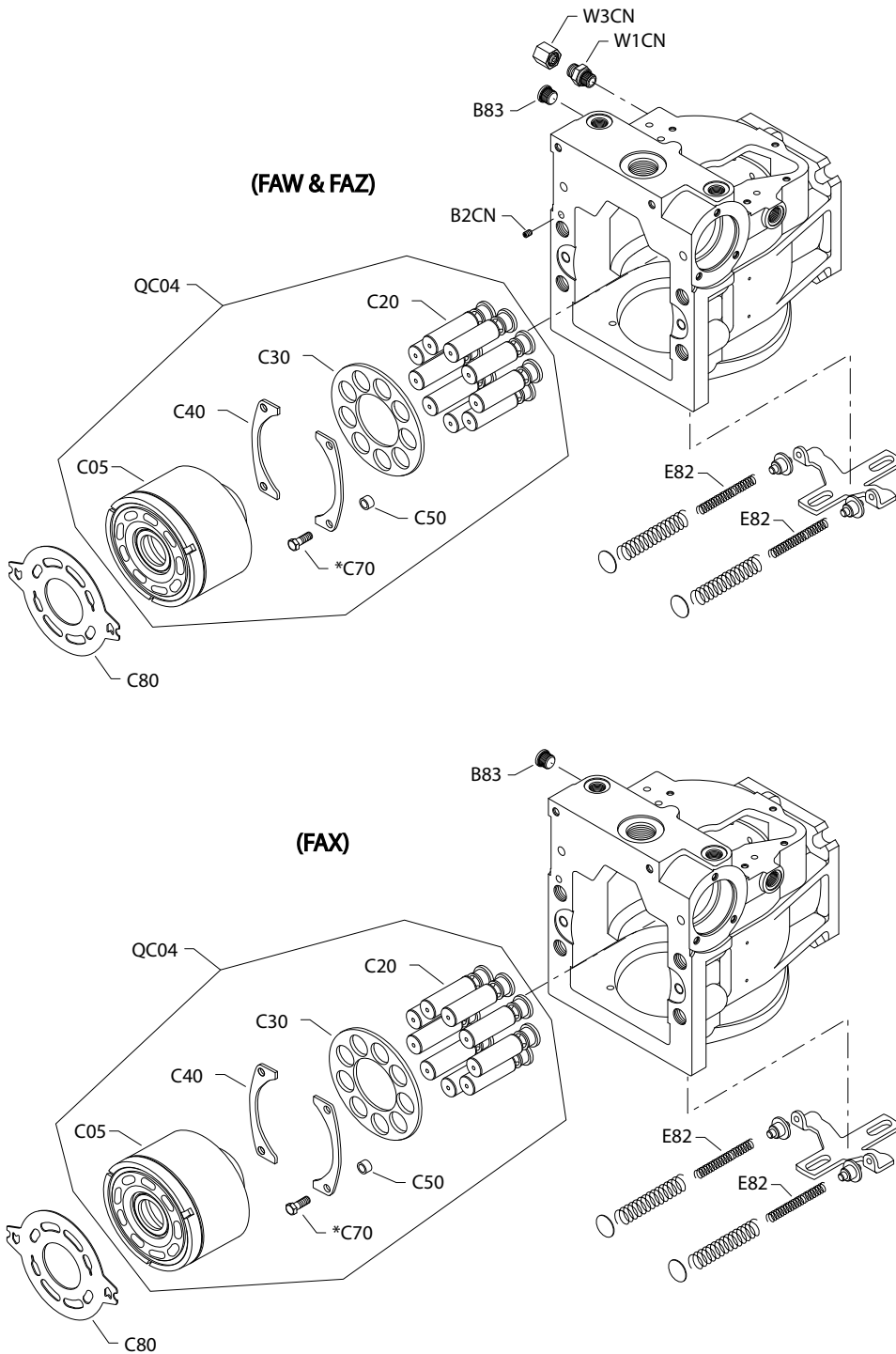
Order code: FAU

B83	98-38		140644 (9005110-5600)	Plug assembly	1
C05	98-38		519257 (11012434)	Cylinder block assembly	1
C80	98-38		518806	Valve plate	1
E82	98-38		356576 (11062702)	Spring	2
QC04	98-38		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware FAW, FAZ, FAX**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: FAW

B2CN	99-19		775312	Set screw	1
B83	99-19		140644 (9005110-5600)	Plug assembly	1
C05	99-19		519257 (11012434)	Cylinder block assembly	1
C80	99-19		510720	Valve plate	1
E82	99-19		356576 (11062702)	Spring	2
QC04	99-19		8510372	Cylinder block kit	1
W1CN	99-19		723726	Connector	1
W3CN	99-19		574095	Cap	1

### Order code: FAX

B83	01-07		140644 (9005110-5600)	Plug assembly	1
C05	01-07		519257 (11012434)	Cylinder block assembly	1
C80	01-07		510720	Valve plate	1
E82	01-07		356576 (11062702)	Spring	2
QC04	01-07		8510372	Cylinder block kit	1

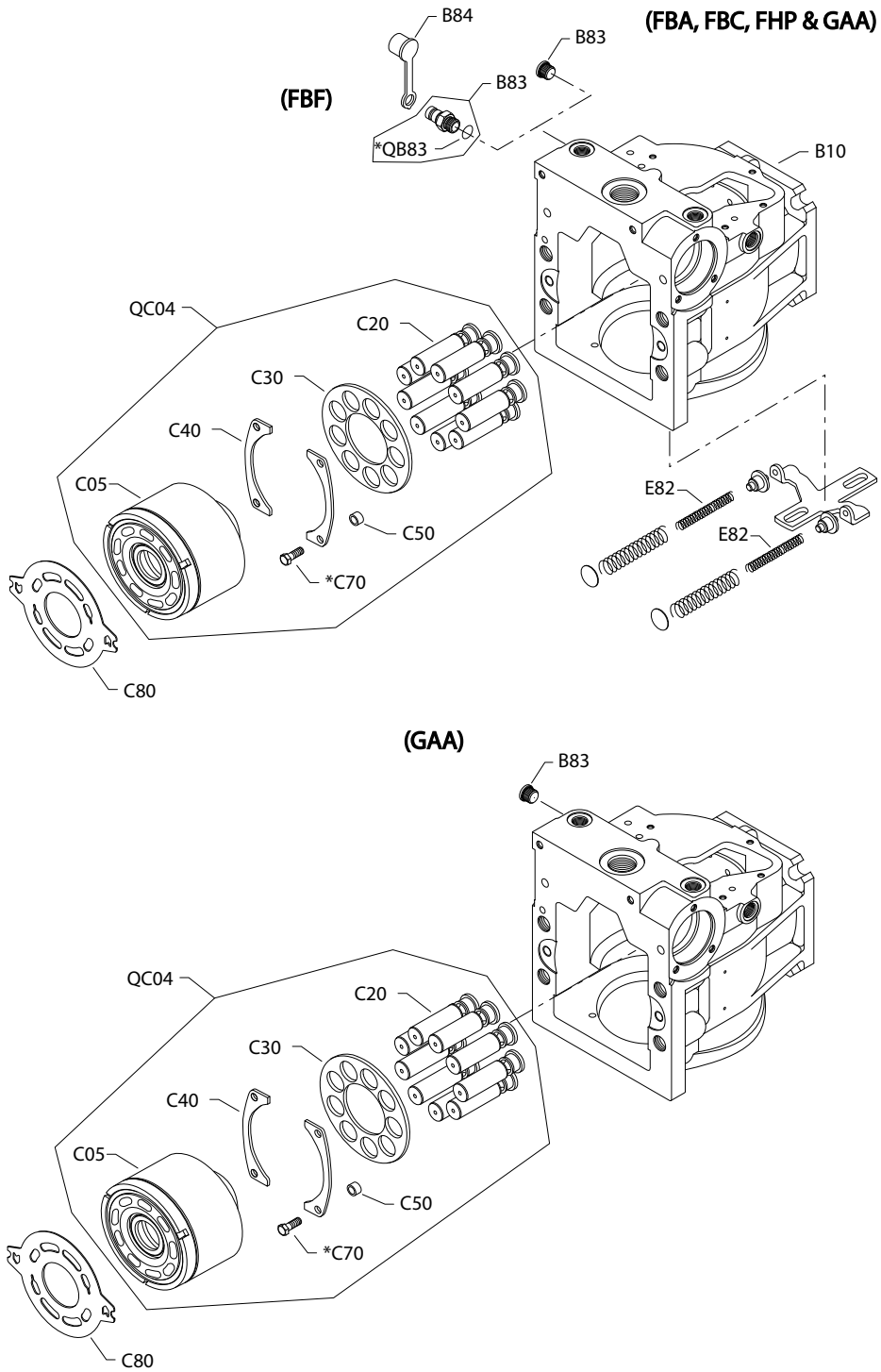
### Order code: FAZ

B2CN	05-14		775312	Set screw	1
B83	05-14		140644 (9005110-5600)	Plug assembly	1
C05	05-14		519257 (11012434)	Cylinder block assembly	1
C80	05-14		518929	Valve plate	1
E82	05-14		356576 (11062702)	Spring	2
QC04	05-14		8510372	Cylinder block kit	1
W1CN	05-14		723726	Connector	1
W3CN	05-14		574095	Cap	1

**Common parts and special hardware**

**S90 100cc pump special hardware FBA-GAA**

*Parts configuration*



\* Included in base pump seal kit Q210

### Common parts and special hardware

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

#### Order code: FBA

B83	06-12		140644 (9005110-5600)	Plug assembly	1
C05	06-12		519257 (11012434)	Cylinder block assembly	1
C80	06-12		518929	Valve plate	1
E82	06-12		356576 (11062702)	Spring	2
QC04	06-12		8510372	Cylinder block kit	1

#### Order code: FBC

B83	06-12		140644 (9005110-5600)	Plug assembly	1
C05	06-12		519257 (11012434)	Cylinder block assembly	1
C80	06-12		518806	Valve plate	1
E82	06-12		356576 (11062702)	Spring	2
QC04	06-12		8510372	Cylinder block kit	1

#### Order code: FBF

B83	06-12		8700127	Diagnostic receptacle	1
B84	06-12		8700128	Dust cover	1
C05	06-12		519257 (11012434)	Cylinder block assembly	1
C80	06-12		518929	Valve plate	1
E82	06-12		356576 (11062702)	Spring	2
QC04	06-12		8510372	Cylinder block kit	1

#### Order code: FHP

B10	12-39		11117130	Housing, special	1
B83	12-39		140644 (9005110-5600)	Plug assembly	1
C05	12-39		519257 (11012434)	Cylinder block assembly	1
C80	12-39		518806	Valve plate	1
E82	12-39		356576 (11062702)	Spring	2
QC04	12-39		8510372	Cylinder block kit	1

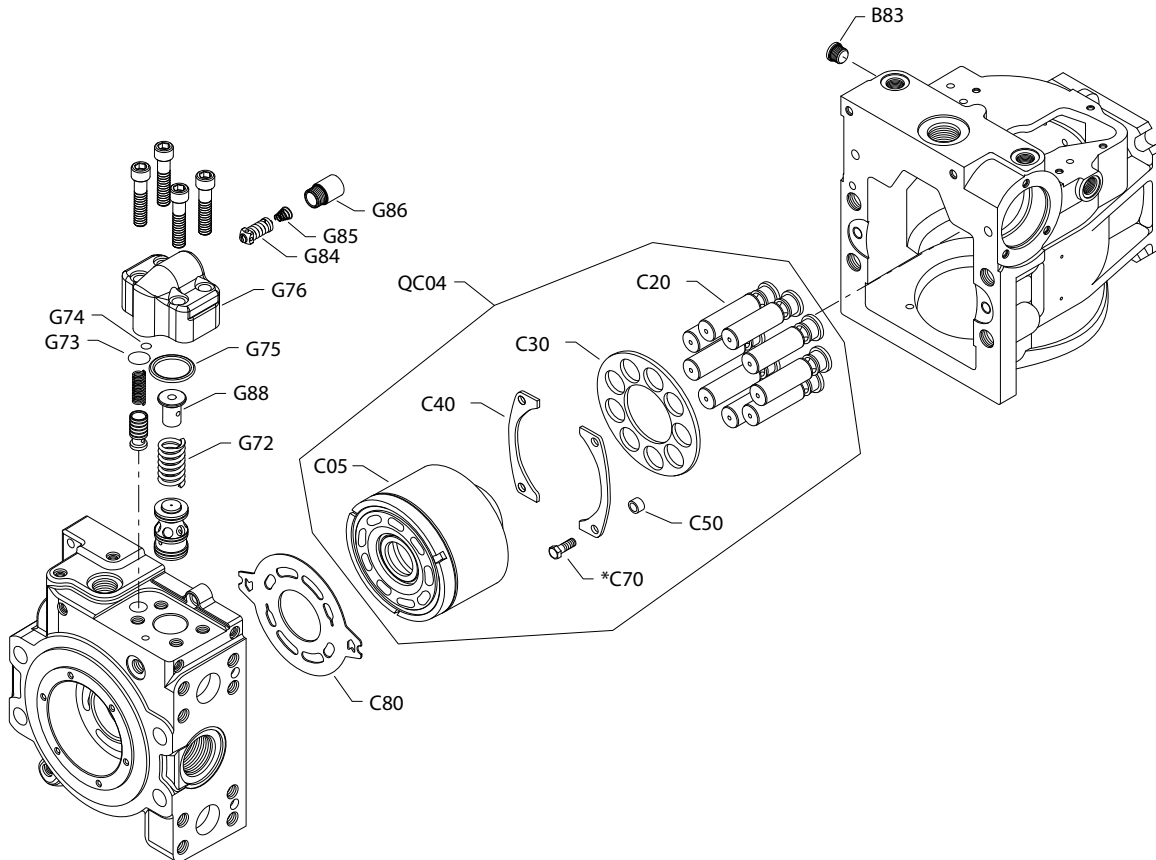
#### Order code: GAA

B83	94-03		140644 (9005110-5600)	Plug assembly	1
C05	94-03		519257 (11012434)	Cylinder block assembly	1
C80	94-03		349266	Valve plate	1
QC04	94-03		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware GB1, GB4, GB8**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: GB1

B83	02-30		140644 (9005110-5600)	Plug assembly	1
C05	02-30		11033868 (11012434)	Cylinder block assembly	1
C80	02-30		518806	Valve plate	1
G73	02-30		519873	Seal	1
G74	02-30		144725 (9004105-0110)	O-ring	1
G75	02-30		518329	O-ring	1
G76	02-30		517828	Valve housing	1
G84	02-30		3103375-0175	SCR valve, 175 bar [2538 psi]	1
G85	02-30		4800780	Spring	1
G86	02-30		11126727	Plug assembly	1
G88	02-30		517829	Spring seat	1
G89	02-30		517831	Spring	1
QC04	02-30		8510372	Cylinder block kit	1

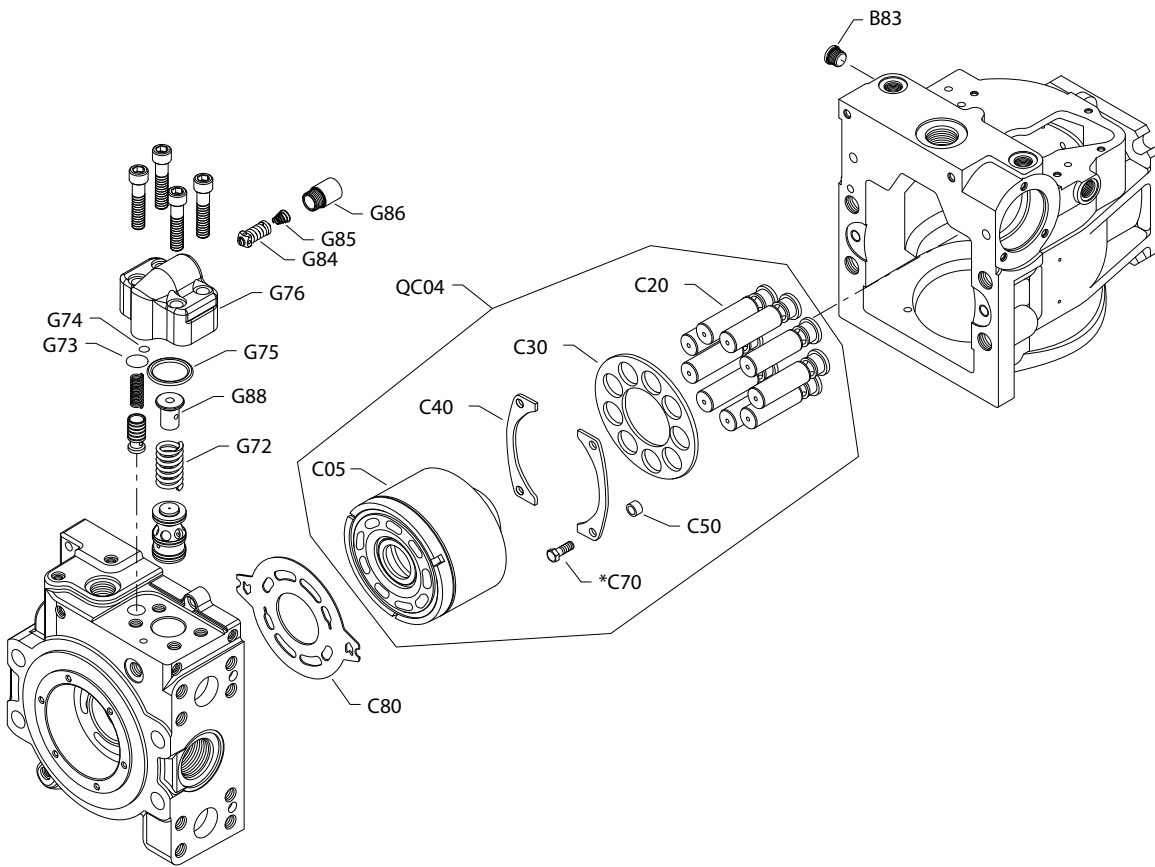
### Order code: GB4

B83	02-30		140644 (9005110-5600)	Plug assembly	1
C05	02-30		11012434	Cylinder block assembly	1
C80	02-30		518806	Valve plate	1
G73	02-30		519873	Seal	1
G74	02-30		144725 (9004105-0110)	O-ring	1
G75	02-30		518329	O-ring	1
G76	02-30		517828	Valve housing	1
G84	02-30		3103375-0140	SCR valve, 140 bar [2030 psi]	1
G85	02-30		4800780	Spring	1
G86	02-30		11126727	Plug assembly	1
G88	02-30		517829	Spring seat	1
G89	02-30		517831	Spring	1
QC04	02-30		8510372	Cylinder block kit	1

[Part numbers continue to the next 2 pages.](#)

**Common parts and special hardware**

*Parts configuration*



\* Included in base pump seal kit Q210



### Common parts and special hardware

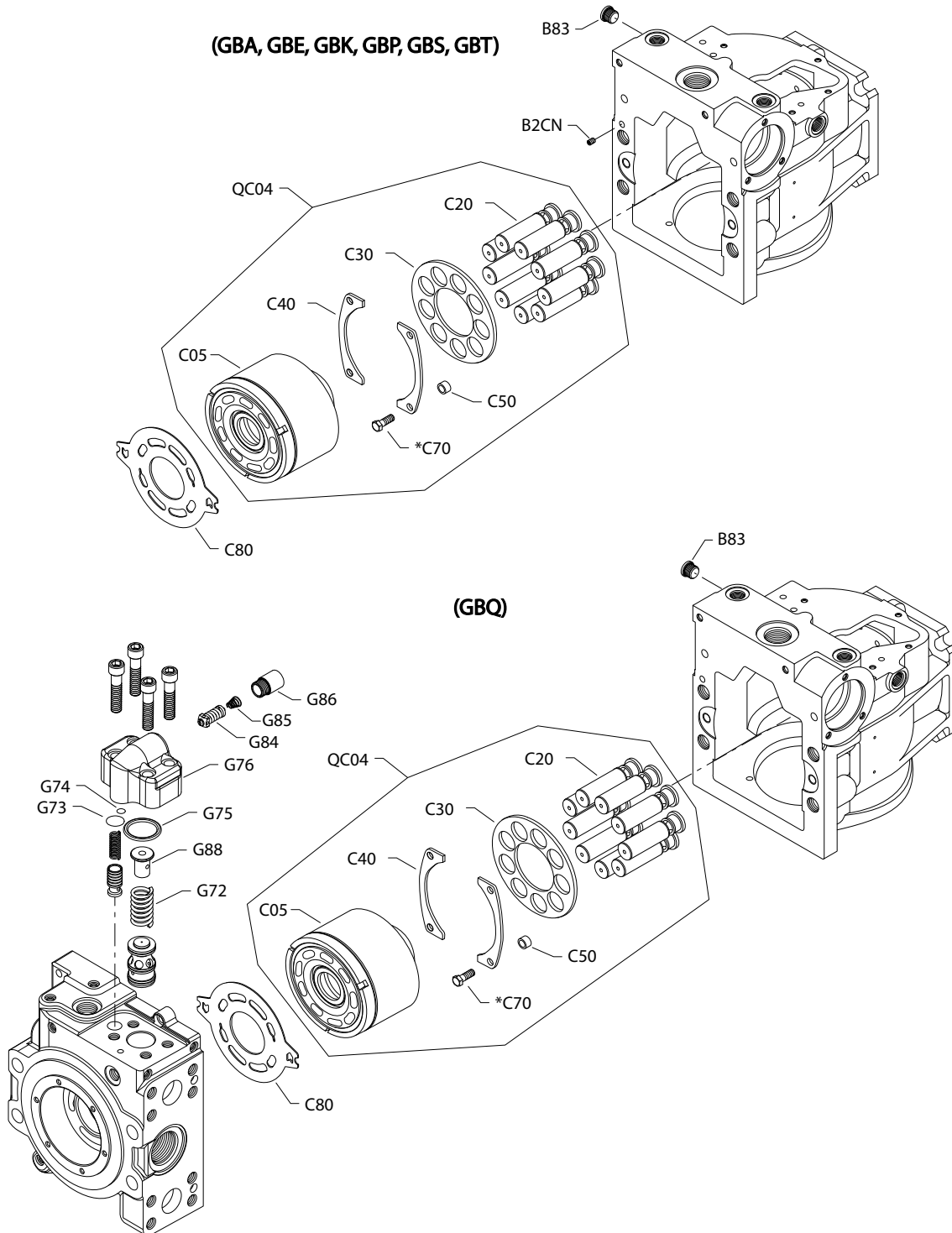
Order code: GB8

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	02-30		140644 (9005110-5600)	Plug assembly	1
C05	02-30		11033868 (11012434)	Cylinder block assembly	1
C80	02-30		518806	Valve plate	1
G73	02-30		519873	Seal	1
G74	02-30		144725 (9004105-0110)	O-ring	1
G75	02-30		518329	O-ring	1
G76	02-30		517828	Valve housing	1
G84	02-30		3103375-0230	SCR valve, 230 bar [3335 psi]	1
G85	02-30		4800780	Spring	1
G86	02-30		11126727	Plug assembly	1
G88	02-30		517829	Spring seat	1
G89	02-30		517831	Spring	1
QC04	02-30		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware GBA-GBT**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: GBA

B83	87-02		140644 (9005110-5600)	Plug assembly	1
C05	87-02		519257 (11012434)	Cylinder block assembly	1
C80	87-02		518806	Valve plate	1
QC04	87-02		8510372	Cylinder block kit	1

### Order code: GBE

B83	06-20		140644 (9005110-5600)	Plug assembly	1
C05	06-20		519257 (11012434)	Cylinder block assembly	1
C80	06-20		518806	Valve plate	1
QC04	06-20		8510372	Cylinder block kit	1

### Order code: GBG

B2CN	95-16		042457	Set screw	1
B83	95-16		140644 (9005110-5600)	Plug assembly	1
C05	95-16		519257 (11012434)	Cylinder block assembly	1
C80	95-16		518806	Valve plate	1
QC04	95-16		8510372	Cylinder block kit	1

### Order code: GBK

B83	95-16		140644 (9005110-5600)	Plug assembly	1
C05	95-16		519257 (11012434)	Cylinder block assembly	1
C80	95-16		518806	Valve plate	1
QC04	95-16		8510372	Cylinder block kit	1

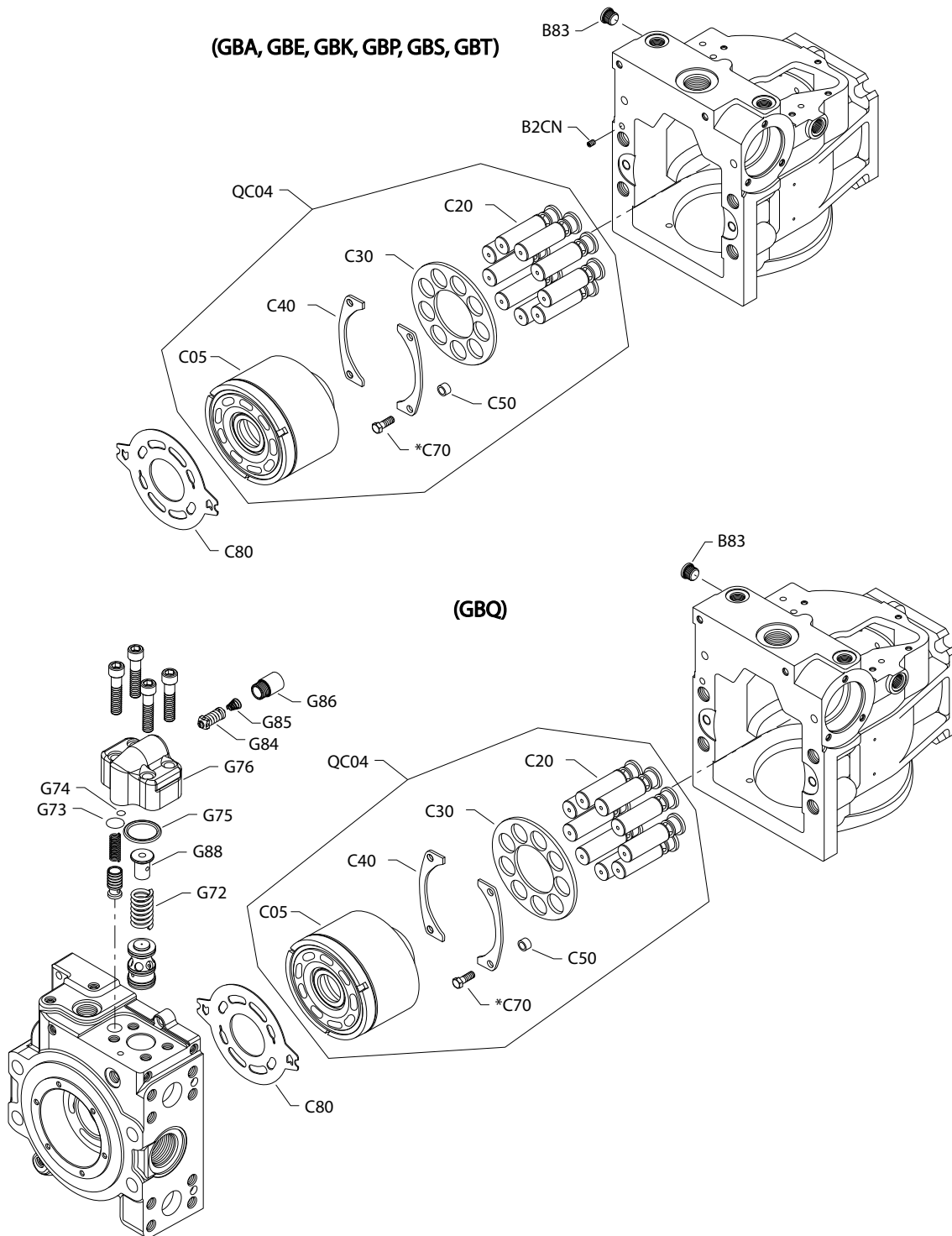
### Order code: GBP

B83	06-17		140644 (9005110-5600)	Plug assembly	1
C05	06-17		519257 (11012434)	Cylinder block assembly	1
C80	06-17		518806	Valve plate	1
QC04	06-17		8510372	Cylinder block kit	1

[Parts continue to the next 2 pages.](#)

**Common parts and special hardware**

*Parts configuration*



\* Included in base pump seal kit Q210

**Common parts and special hardware**

*Order code: GBQ*

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	95-16		140644 (9005110-5600)	Plug assembly	1
C05	95-16		519257 (11012434)	Cylinder block assembly	1
C80	95-16		518806	Valve plate	1
QC04	95-16		8510372	Cylinder block kit	1

*Order code: GBS*

B83	97-05		140644 (9005110-5600)	Plug assembly	1
C05	97-05		519257 (11012434)	Cylinder block assembly	1
C80	97-05		518806	Valve plate	1
QC04	97-05		8510372	Cylinder block kit	1

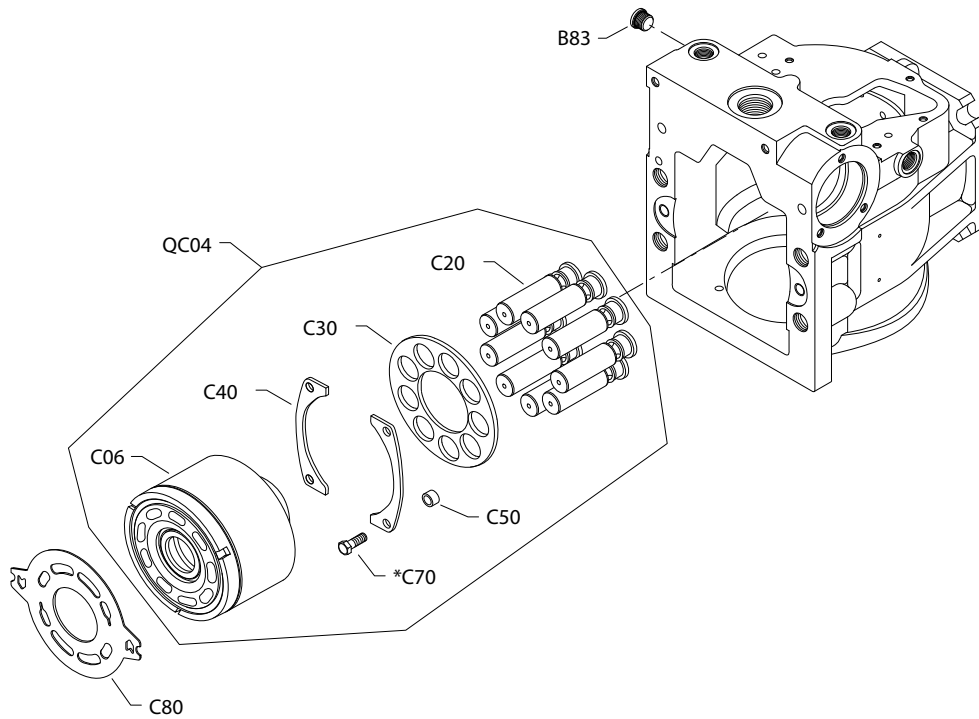
*Order code: GBT*

B83	04-50		140644 (9005110-5600)	Plug assembly	1
C05	04-50		519257 (11012434)	Cylinder block assembly	1
C80	04-50		518806	Valve plate	1
QC04	04-50		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware GCA-GFJ**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: GCA

B83	98-14		140644 (9005110-5600)	Plug assembly	1
C05	98-14		519257 (11012434)	Cylinder block assembly	1
C80	98-14		518929	Valve plate	1
QC04	98-14		8510372	Cylinder block kit	1

### Order code: GCP

B83	94-50		140644 (9005110-5600)	Plug assembly	1
C05	94-50		519257 (11012434)	Cylinder block assembly	1
C80	94-50		518929	Valve plate	1
QC04	94-50		8510372	Cylinder block kit	1

### Order code: GCR

B83	11-23		140644 (9005110-5600)	Plug assembly	1
C05	11-23		519257 (11012434)	Cylinder block assembly	1
C80	11-23		518806	Valve plate	1
QC04	11-23		8510372	Cylinder block kit	1

### Order code: GCS

B83	98-49		140644 (9005110-5600)	Plug assembly	1
C05	98-49		519257 (11012434)	Cylinder block assembly	1
C80	98-49		518929	Valve plate	1
QC04	98-49		8510372	Cylinder block kit	1

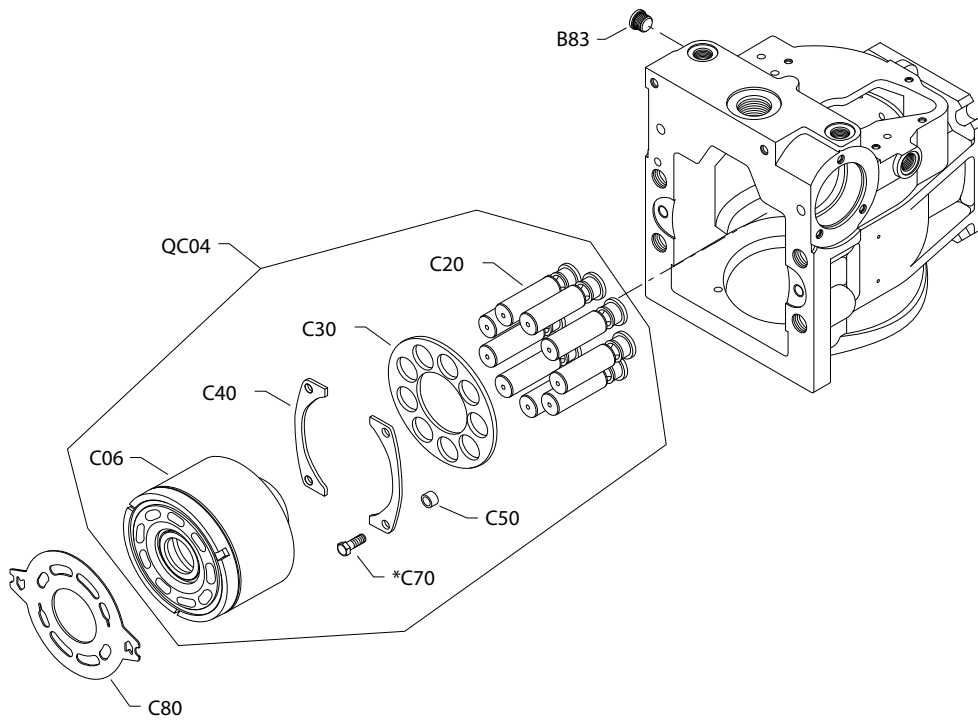
### Order code: GDE

B83	98-49		140644 (9005110-5600)	Plug assembly	1
C05	98-49		519257 (11012434)	Cylinder block assembly	1
C80	98-49		518806	Valve plate	1
QC04	98-49		8510372	Cylinder block kit	1

[Parts continue to the next 2 pages.](#)

### Common parts and special hardware

#### Parts configuration



\* Included in base pump seal kit Q210



### Common parts and special hardware

Order code: GFD

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	06-12		140644 (9005110-5600)	Plug assembly	1
C05	06-12		519257 (11012434)	Cylinder block assembly	1
C80	06-12		518806	Valve plate	1
QC04	06-12		8510372	Cylinder block kit	1

Order code: GFH

B83	06-12		140644 (9005110-5600)	Plug assembly	1
C05	06-12		519257 (11012434)	Cylinder block assembly	1
C80	06-12		518806	Valve plate	1
QC04	06-12		8510372	Cylinder block kit	1

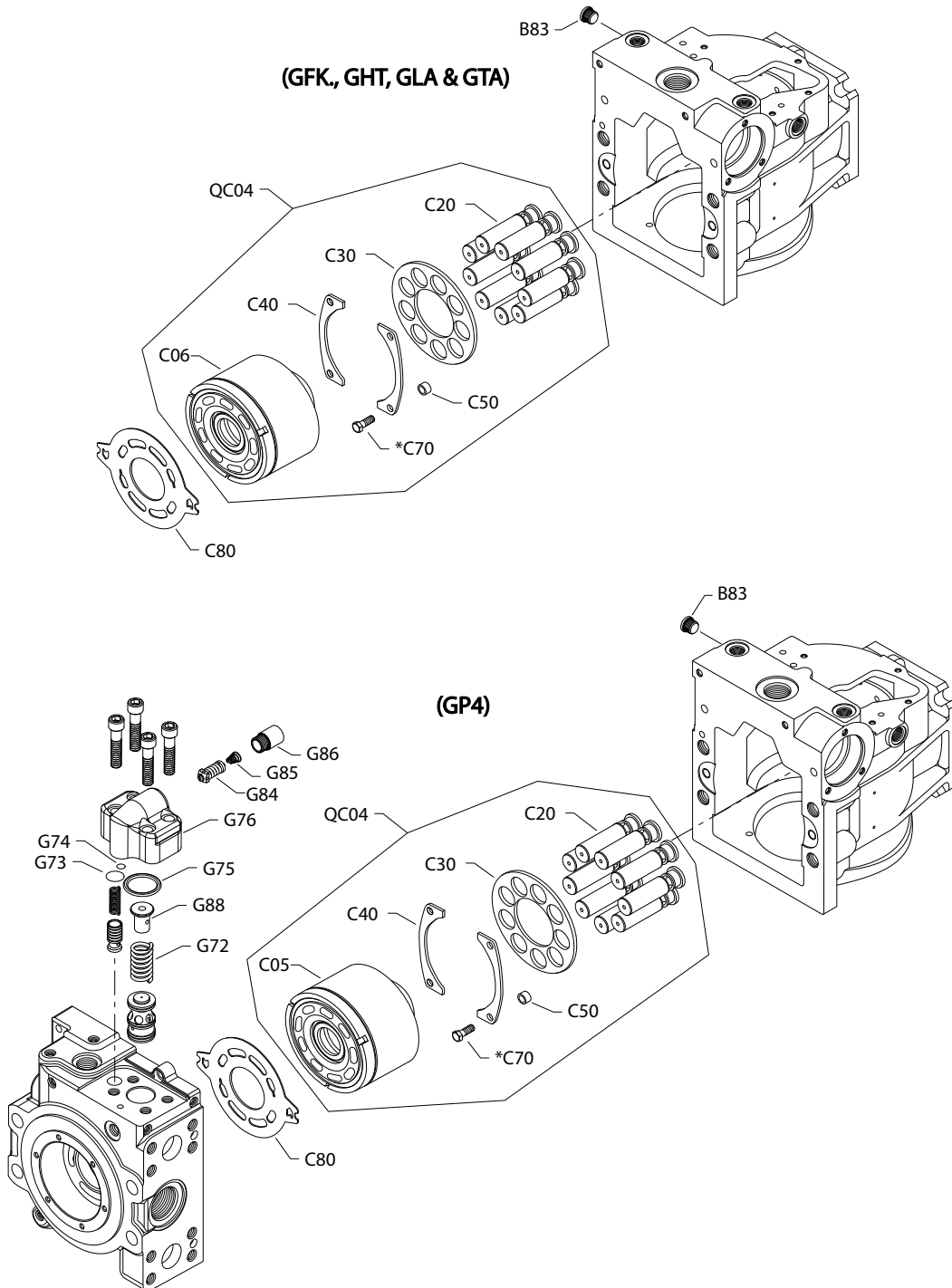
Order code: GFJ

B83	06-14		140644 (9005110-5600)	Plug assembly	1
C05	06-14		519257 (11012434)	Cylinder block assembly	1
C80	06-14		518806	Valve plate	1
QC04	06-14		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware GFK-GTA**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: GFK

B83	06-12		140644 (9005110-5600)	Plug assembly	1
C05	06-12		519257 (11012434)	Cylinder block assembly	1
C80	06-12		518806	Valve plate	1
QC04	06-12		8510372	Cylinder block kit	1

### Order code: GHT

B10	12-39		11117130	Housing, special	1
B83	12-39		140644 (9005110-5600)	Plug assembly	1
C05	12-39		519257 (11012434)	Cylinder block assembly	1
C80	12-39		518929	Valve plate	1
QC04	12-39		8510372	Cylinder block kit	1

### Order code: GLA

B83	07-49		140644 (9005110-5600)	Plug assembly	1
C05	07-49		519257 (11012434)	Cylinder block assembly	1
C80	07-49		518931	Valve plate, CCW	1
C80	07-49		518930	Valve plate, CW	1
QC04	07-49		8510372	Cylinder block kit	1

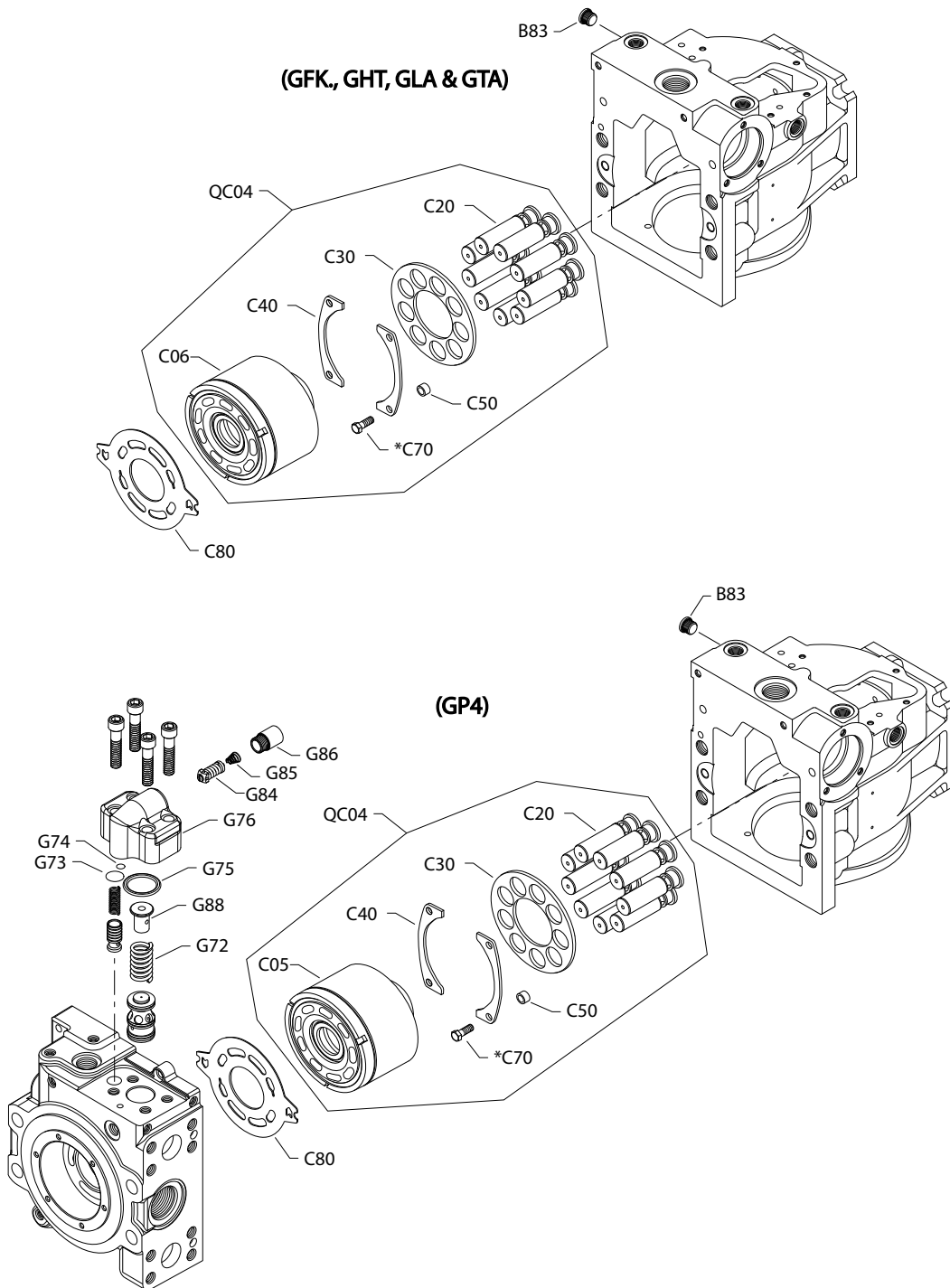
### Order code: GLS

B83	07-49		140644 (9005110-5600)	Plug assembly	1
C05	07-49		519257 (11012434)	Cylinder block assembly	1
C80	07-49		518931	Valve plate, CCW	1
C80	07-49		518930	Valve plate, CW	1
QC04	07-49		8510372	Cylinder block kit	1

[Parts continue to the next 2 pages.](#)

**Common parts and special hardware**

*Parts configuration*



\* Included in base pump seal kit Q210

### Common parts and special hardware

Order code: GP4

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	09-30		140644 (9005110-5600)	Plug assembly	1
C05	09-30		11012434	Cylinder block assembly	1
C80	09-30		518930	Valve plate	1
G73	09-30		519873	Seal	1
G74	09-30		144725 (9004105-0110)	O-ring	1
G75	09-30		518329	O-ring	1
G76	09-30		517828	Valve housing	1
G84	09-30		3103375-0140	SCR valve, 140 bar [2030 psi]	1
G85	09-30		4800780	Spring	1
G86	09-30		11126727	Plug assembly	1
G88	09-30		517829	Spring seat	1
G89	09-30		517831	Spring	1
QC04	09-30		8510372	Cylinder block kit	1

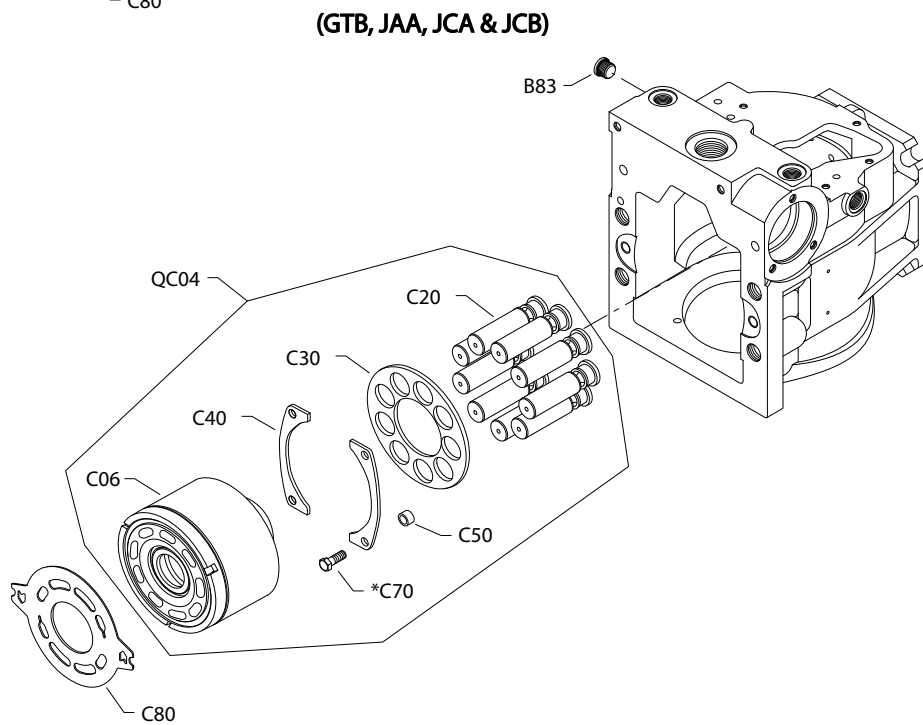
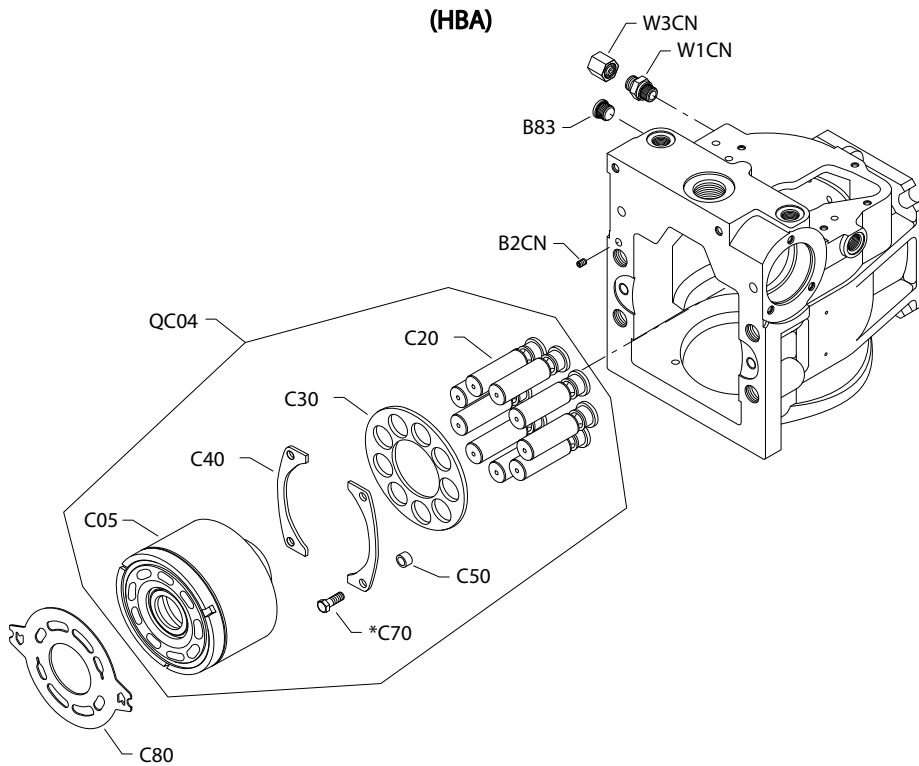
Order code: GTA

B83	14-02		140644 (9005110-5600)	Plug assembly	1
C05	14-02		519257 (11012434)	Cylinder block assembly	1
C80	14-02		518806	Valve plate	1
QC04	14-02		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware GTB-JCB**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: GTB

B83	15-41		140644 (9005110-5600)	Plug assembly	1
C05	15-41		519257 (11012434)	Cylinder block assembly	1
C80	15-41		518806	Valve plate	1
QC04	15-41		8510372	Cylinder block kit	1

### Order code: HBA

B2CN	94-14		775312	Set screw	1
B83	94-14		140644	Plug assembly	1
C05	94-14		519257 (11012434)	Cylinder block assembly	1
C80	94-14		518994	Valve plate	1
QC04	94-14		8510372	Cylinder block kit	1
W1CN	94-14		723726	Connector	1
W3CN	94-14		574095	Cap	1

### Order code: JAA

B83	94-13		140644 (9005110-5600)	Plug assembly	1
C05	94-13		519257 (11012434)	Cylinder block assembly	1
C80	94-13		518994	Valve plate	1
QC04	94-13		8510372	Cylinder block kit	1

### Order code: JCA

B83	08-12		140644 (9005110-5600)	Plug assembly	1
C05	08-12		519257 (11012434)	Cylinder block assembly	1
C80	08-12		518806	Valve plate	1
QC04	08-12		8510372	Cylinder block kit	1

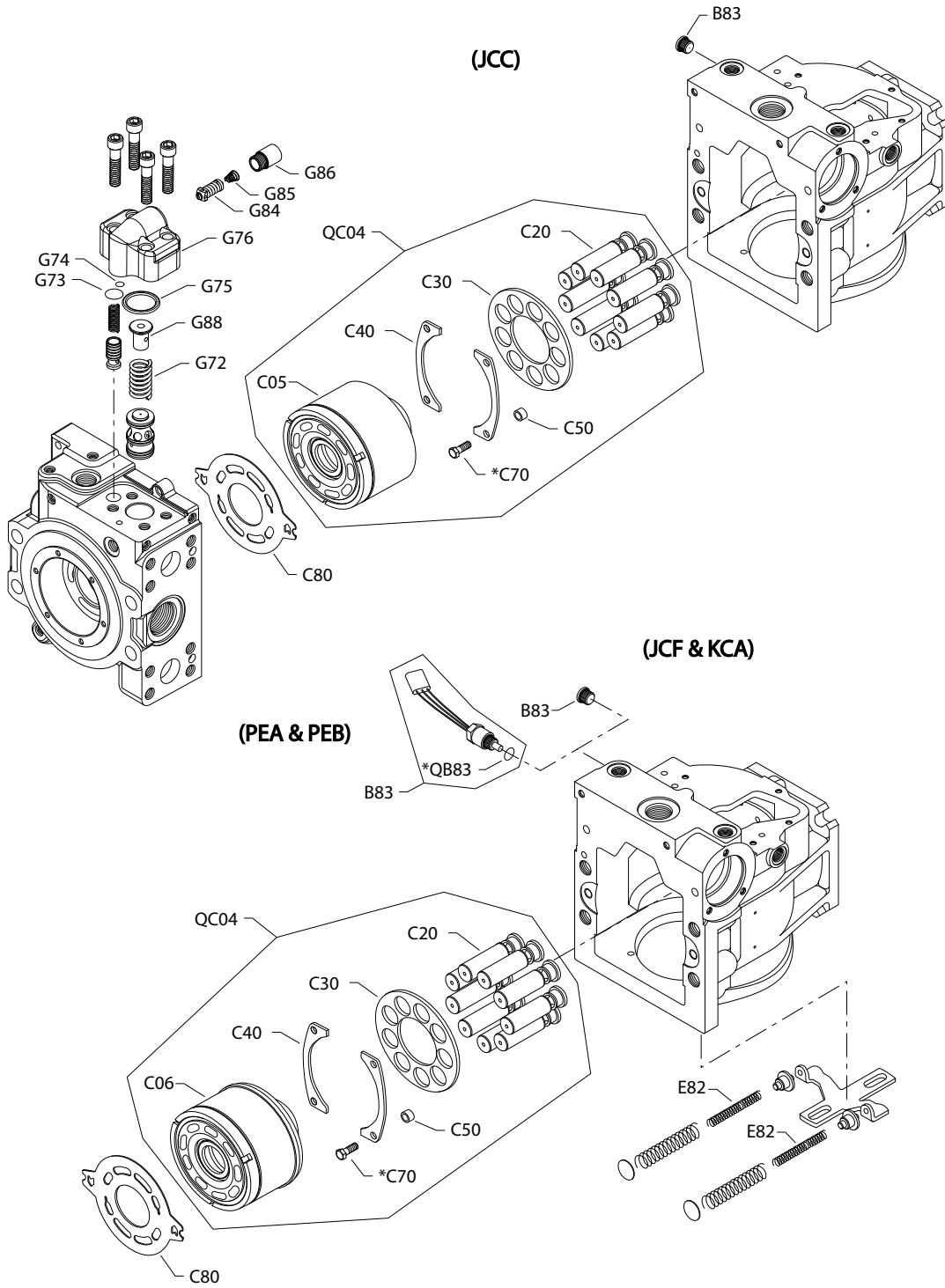
### Order code: JCB

B83	09-13		140644 (9005110-5600)	Plug assembly	1
C05	09-13		519257 (11012434)	Cylinder block assembly	1
C80	09-13		518806	Valve plate	1
QC04	09-13		8510372	Cylinder block kit	1

**Common parts and special hardware**

**S90 100cc pump special hardware JCC-PEB**

*Parts configuration*



\* Included in base pump seal kit Q210

Generic speed sensor shown.



## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: JCC

B83	09-13		140644 (9005110-5600)	Plug assembly	1
C05	09-13		11033868	Cylinder block assembly	1
C80	09-13		518806	Valve plate	1
G73	09-13		519873	Seal	1
G74	09-13		144725 (9004105-0110)	O-ring	1
G75	09-13		518329	O-ring	1
G76	09-13		517828	Valve housing	1
G84	09-13		3103375-0175	SCR valve, 175 bar [2538 psi]	1
G85	09-13		4800780	Spring	1
G86	09-13		11126727	Plug assembly	1
G88	09-13		517829	Spring seat	1
G89	09-13		517831	Spring	1
QC04	09-13		8510372	Cylinder block kit	1

### Order code: JCF

B83	10-15		140644 (9005110-5600)	Plug assembly	1
C05	10-15		519257 (11012434)	Cylinder block assembly	1
C80	10-15		518929	Valve plate	1
E82	10-15		356576 (11062702)	Spring	2
QC04	10-15		8510372	Cylinder block kit	1

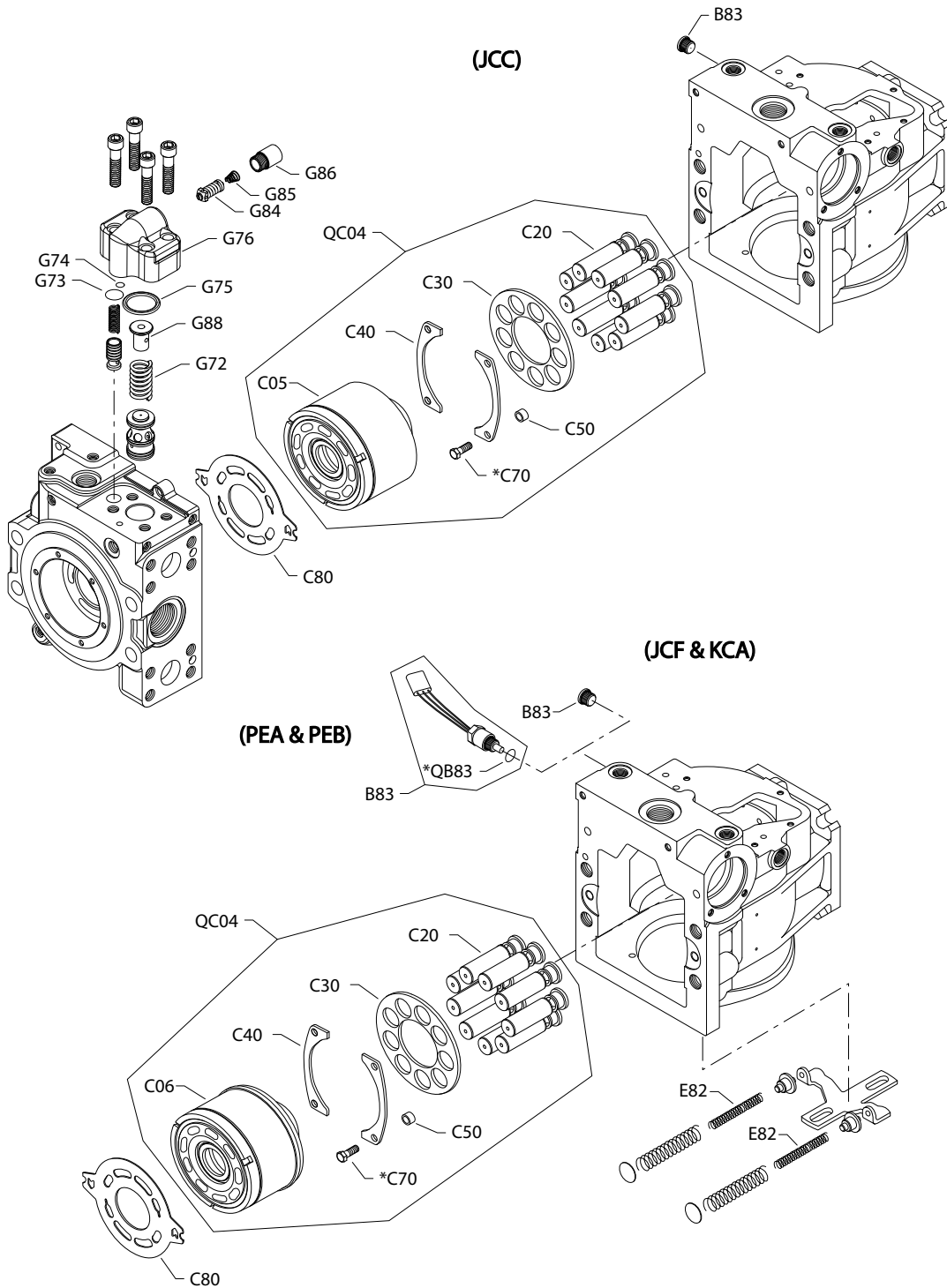
### Order code: KCA

B83	94-29		140644 (9005110-5600)	Plug assembly	1
C05	94-29		519257 (11012434)	Cylinder block assembly	1
C80	94-29		518994	Valve plate	1
QC04	94-29		8510372	Cylinder block kit	1

[Parts continue to the next 2 pages.](#)

**Common parts and special hardware**

*Parts configuration*



\* Included in base pump seal kit Q210

Generic speed sensor shown.

### Common parts and special hardware

Order code: PEA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B83	07-04		KPPG156	Speed sensor	1
C06	07-04		11093925	Cylinder block assembly, with speed ring	1
C80	07-04		518806	Valve plate	1
QB83	07-04		085043 (9004201-3700)	O-ring	1
QC04	07-04		8510371	Cylinder block kit, with speed ring	1

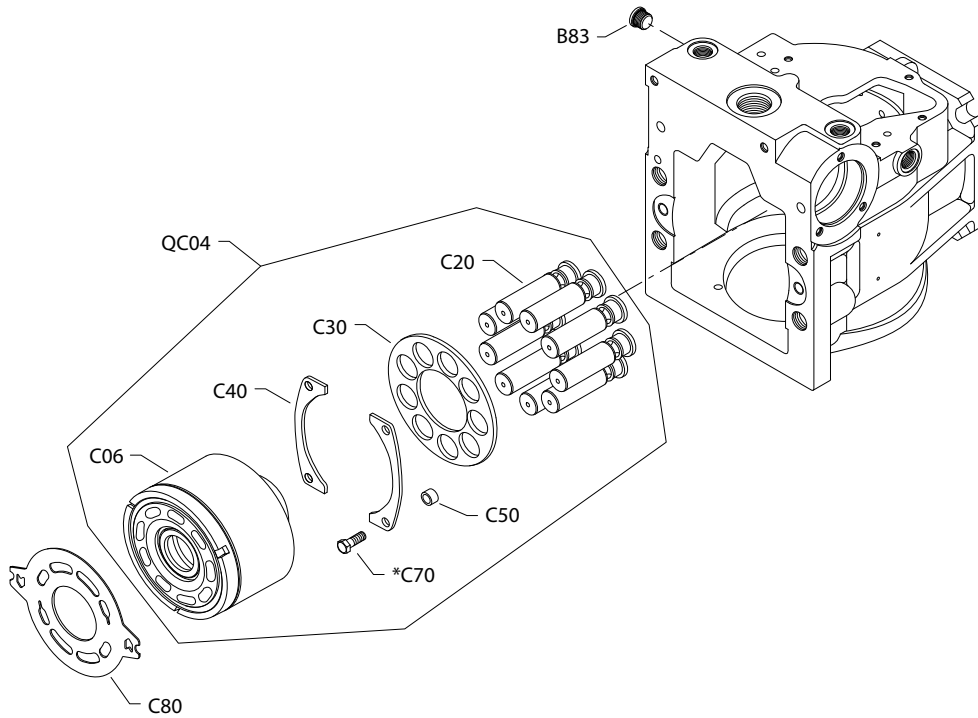
Order code: PEB

B83	08-32		KPPG156	Speed sensor	1
C05	08-32		11093925	Cylinder block assembly, with speed ring	1
C80	08-32		518931	Valve plate	1
QB83	07-04		085043 (9004201-3700)	O-ring	1
QC04	08-32		8510371	Cylinder block kit, with speed ring	1

**Common parts and special hardware**

**S90 100cc pump special hardware PGA, PGB**

*Parts configuration*



\* Included in base pump seal kit Q210

## Common parts and special hardware

### Common parts

Item	Date Begin	Date End	Part Name	Part Number	Qty. per Model/Kit
C20	87-02		364000	Piston assembly ( <a href="#">SB-1988-023</a> on page 261)	9
C30	87-02		11067351	Slipper guide	1
C40	88-22		334409 (8200144)	Slipper guide bearing ( <a href="#">SB-1988-016</a> on page 259)	2
C50	88-22		334383 (11065866)	Spacer ( <a href="#">SB-1988-016</a> on page 259, <a href="#">SB-1998-041</a> on page 292 & <a href="#">SB-2009-038</a> on page 320)	4
C65	88-22	98-47	Obsolete	Washer ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4

### Order code: PGA

B83	08-32		140644 (9005110-5600)	Plug assembly	1
C05	08-32		519257 (11012434)	Cylinder block assembly	1
C80	08-32		518806	Valve plate	1
QC04	08-32		8510372	Cylinder block kit	1

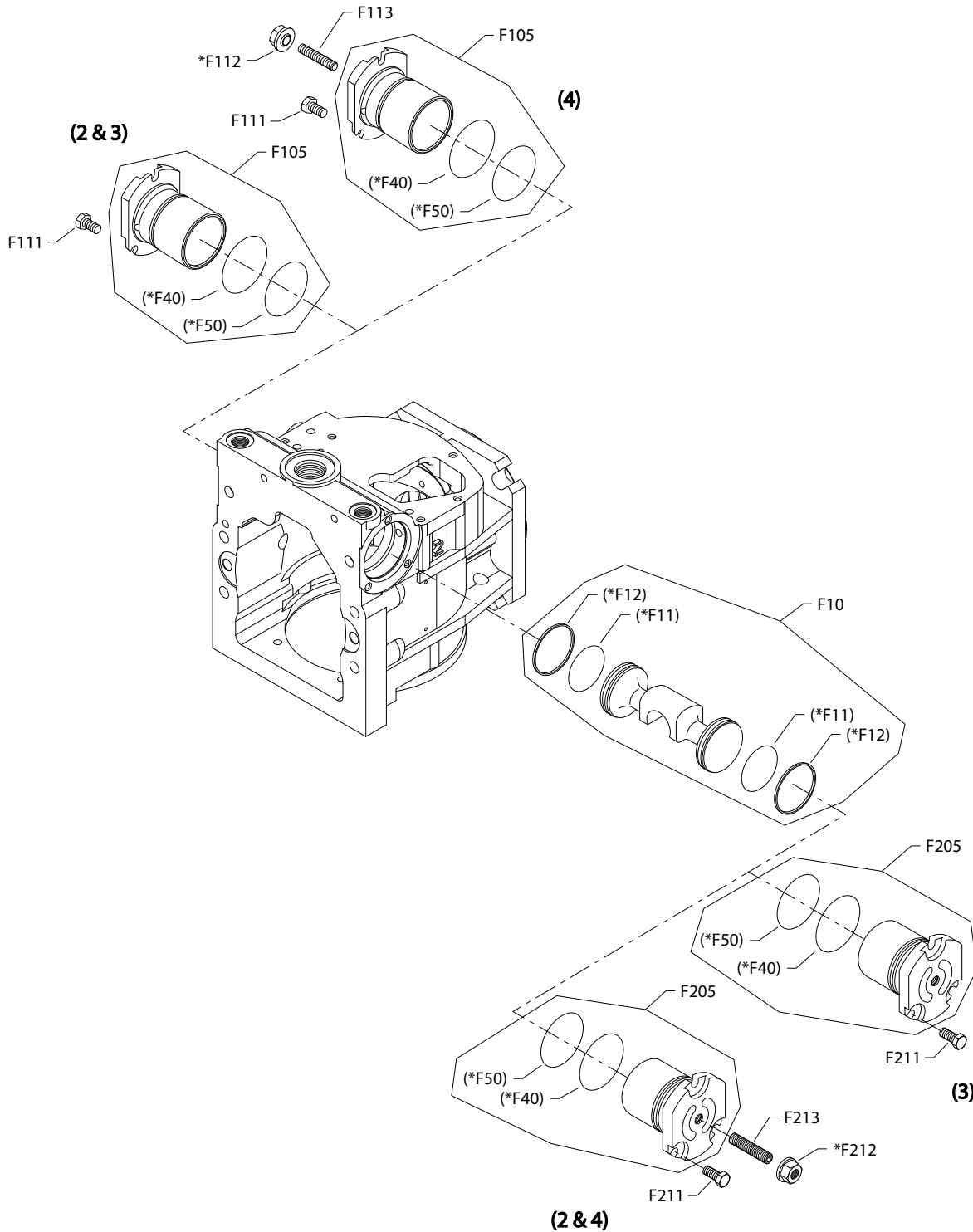
### Order code: PGB

B83	08-32		140644 (9005110-5600)	Plug assembly	1
C05	08-32		519257 (11012434)	Cylinder block assembly	1
C80	08-32		518931	Valve plate, CCW	1
QC04	08-32		8510372	Cylinder block kit	1

**Displacement limitation**

**S90 100cc pump displacement limitation 2-4**

Parts configuration



\* Included in base pump seal kit Q210

() Not available for individually

## Displacement limitation

Order code: 2

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F10	00-02		11044943	Servo piston assembly ( <a href="#">SB-2000-022</a> on page 304 & <a href="#">SB-2009-035</a> on page 319)	1
F105	00-02		11060703 (11055769)	Servo cylinder assembly	1
F111	00-02		378083 (9007210-0804)	Screw	3
F205	00-02		11060704 (11055771)	Servo cylinder assembly	1
F211	00-02		378083 (9007210-0804)	Screw	3
F212	00-02		505412 (9003509-0008)	Seal nut	1
F213	00-02		5000747	Set screw ( <a href="#">SB-2000-022</a> on page 304)	1

Order code: 3

F10	87-02		11044943	Servo piston assembly ( <a href="#">SB-2000-022</a> on page 304 & <a href="#">SB-2009-035</a> on page 319)	1
F105	87-02		11060703 (11055769)	Servo cylinder assembly	1
F111	87-02		378083 (9007210-0804)	Screw	3
F205	87-02		11060703 (11055769)	Servo cylinder assembly	1
F211	87-02		378083 (9007210-0804)	Screw	3

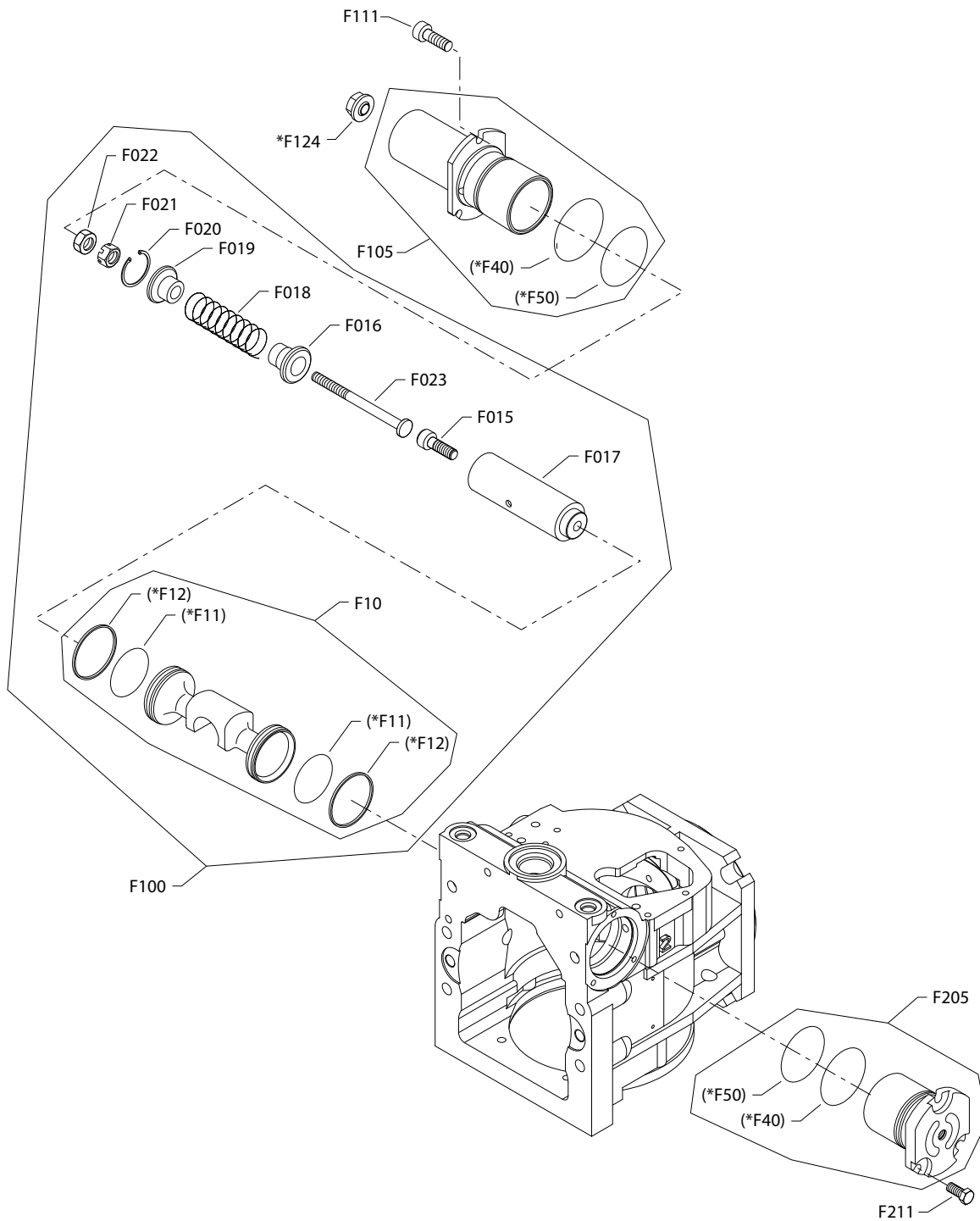
Order code: 4

F10	87-02		11044943	Servo piston assembly ( <a href="#">SB-2000-022</a> on page 304 & <a href="#">SB-2009-035</a> on page 319)	1
F105	87-02		11060704 (11055771)	Servo cylinder assembly	1
F111	87-02		378083 (9007210-0804)	Screw	3
F112	87-02		505412 (9003509-0008)	Seal nut	1
F113	87-02		5000747	Setscrew ( <a href="#">SB-2000-022</a> on page 304)	1
F205	87-02		11060704 (11055771)	Servo cylinder assembly	1
F211	87-02		378083 (9007210-0804)	Screw	3
F212	87-02		505412 (9003509-0008)	Seal nut	1
F213	87-02		5000747	Set screw ( <a href="#">SB-2000-022</a> on page 304)	1

**Displacement limitation**

**S90 100cc pump displacement limitation 7**

*Parts configuration*



\* Included in base pump seal kit Q210

() Not available individually



## Displacement limitation

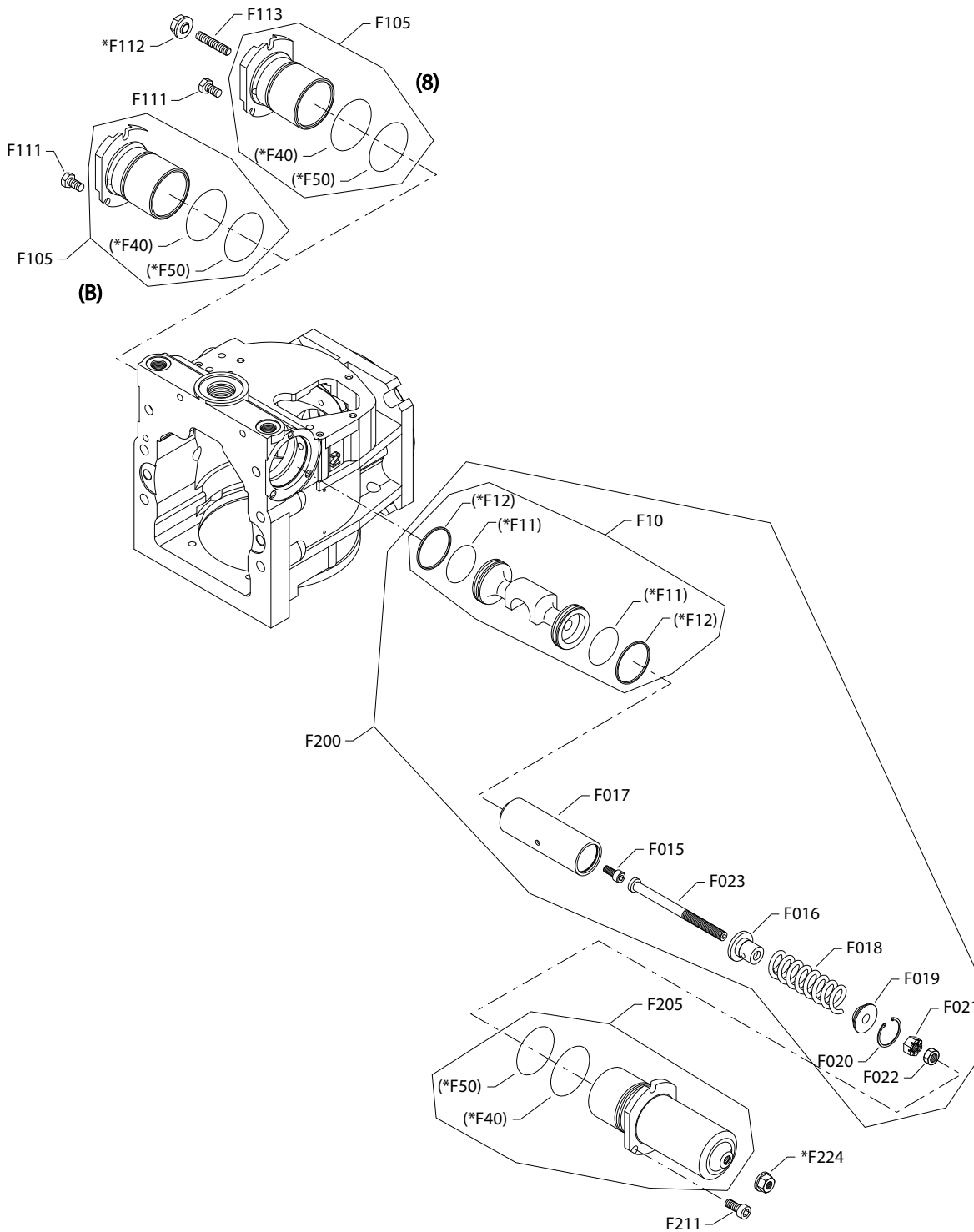
Order code: 7

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F10	98-14		11044946	Servo piston assembly	1
F015	98-14		346031	Screw	1
F016	98-14		507096	Spring guide	1
F017	98-14		345967	Servo spring housing	1
F018	98-14		351742	Spring	1
F019	98-14		507094	Spring guide	1
F020	98-14		505826	Retaining ring	1
F021	98-14		507045	Castle nut	1
F022	98-14		346015	Nut	1
F023	98-14		11140221	Adjusting screw	1
F100	98-14		515327 (8200532)	Servo assembly	1
F105	98-14		11059762 (11055776)	Servo cylinder assembly, automotive control	1
F111	98-14		746651 (393595)	Screw	3
F124	98-14		066159	Seal nut	1
F205	98-14		11060703 (11055769)	Servo cylinder assembly	1
F211	98-14		378083 (9007210-0804)	Screw	3

**Displacement limitation**

**S90 100cc pump displacement limitation 8, B**

*Parts configuration*



## Displacement limitation

Order code: 8

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F10	90-07	15-03	11044946	Servo piston assembly	1
F015	90-07	15-03	346031	Screw	1
F016	90-07	15-03	507096	Spring guide	1
F017	90-07	15-03	345967	Servo spring housing	1
F018	90-07	15-03	351742	Spring	1
F019	90-07	15-03	507094	Spring guide	1
F020	90-07	15-03	505826	Retaining ring	1
F021	90-07	15-03	507045	Castle nut	1
F022	90-07	15-03	346015	Nut	1
F023	90-07	15-03	11140221	Adjusting screw	1
F105	90-07	15-03	11060704 (11055771)	Servo cylinder assembly	1
F111	90-07	15-03	378083 (9007210-0804)	Screw	3
F112	90-07	15-03	505412 (9003509-0008)	Seal nut	1
F113	90-07	15-03	5000747	Set screw, M8 x 45mm, ( <a href="#">SB-2000-022</a> on page 304)	1
F200	90-07	15-03	515327 (8200532)	Servo assembly	1
F205	90-07	15-03	11059762 (11055776)	Servo cylinder assembly	1
F211	90-07	15-03	746651 (393595)	Screw	3
F224	90-07	15-03	066159	Seal nut	1

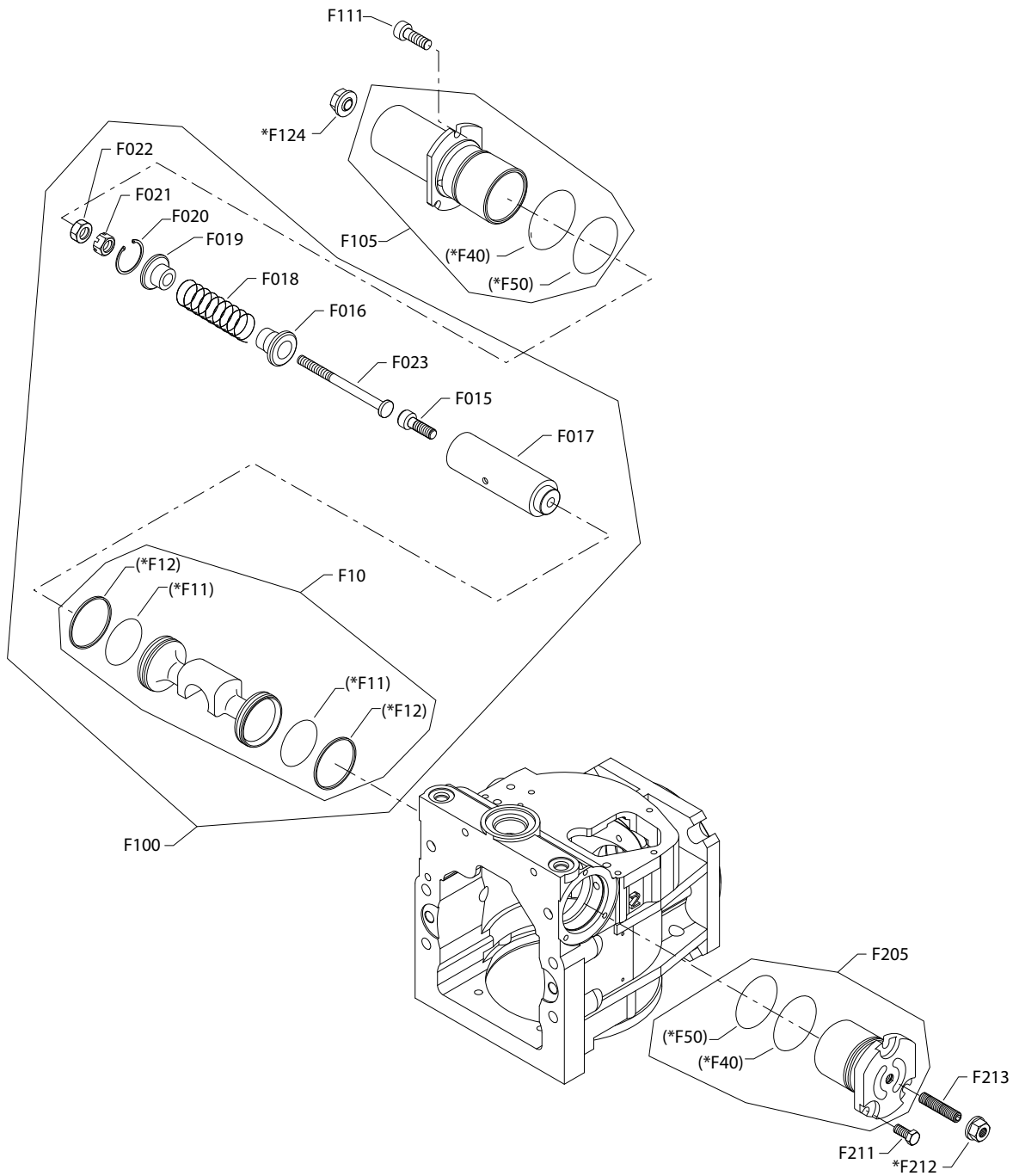
Order code: B

F10	98-14		11044946	Servo piston assembly	1
F015	98-14		346031	Screw	1
F016	98-14		507096	Spring guide	1
F017	98-14		345967	Servo spring housing	1
F018	98-14		351742	Spring	1
F019	98-14		507094	Spring guide	1
F020	98-14		505826	Retaining ring	1
F021	98-14		507045	Castle nut	1
F022	98-14		346015	Nut	1
F023	98-14		11140221	Adjusting screw	1
F105	98-14		11060703 (11055769)	Servo cylinder assembly	1
F111	98-14		378083 (9007210-0804)	Screw	3
F200	98-14		515327 (8200532)	Servo assembly	1
F205	98-14		11059762 (11055776)	Servo cylinder assembly	1
F211	98-14		746651 (393595)	Screw	3
F224	98-14		066159	Seal nut	1

**Displacement limitation**

**S90 100cc pump displacement limitation D**

*Parts configuration*



\* Included in base pump seal kit Q210

() Not available individually

## Displacement limitation

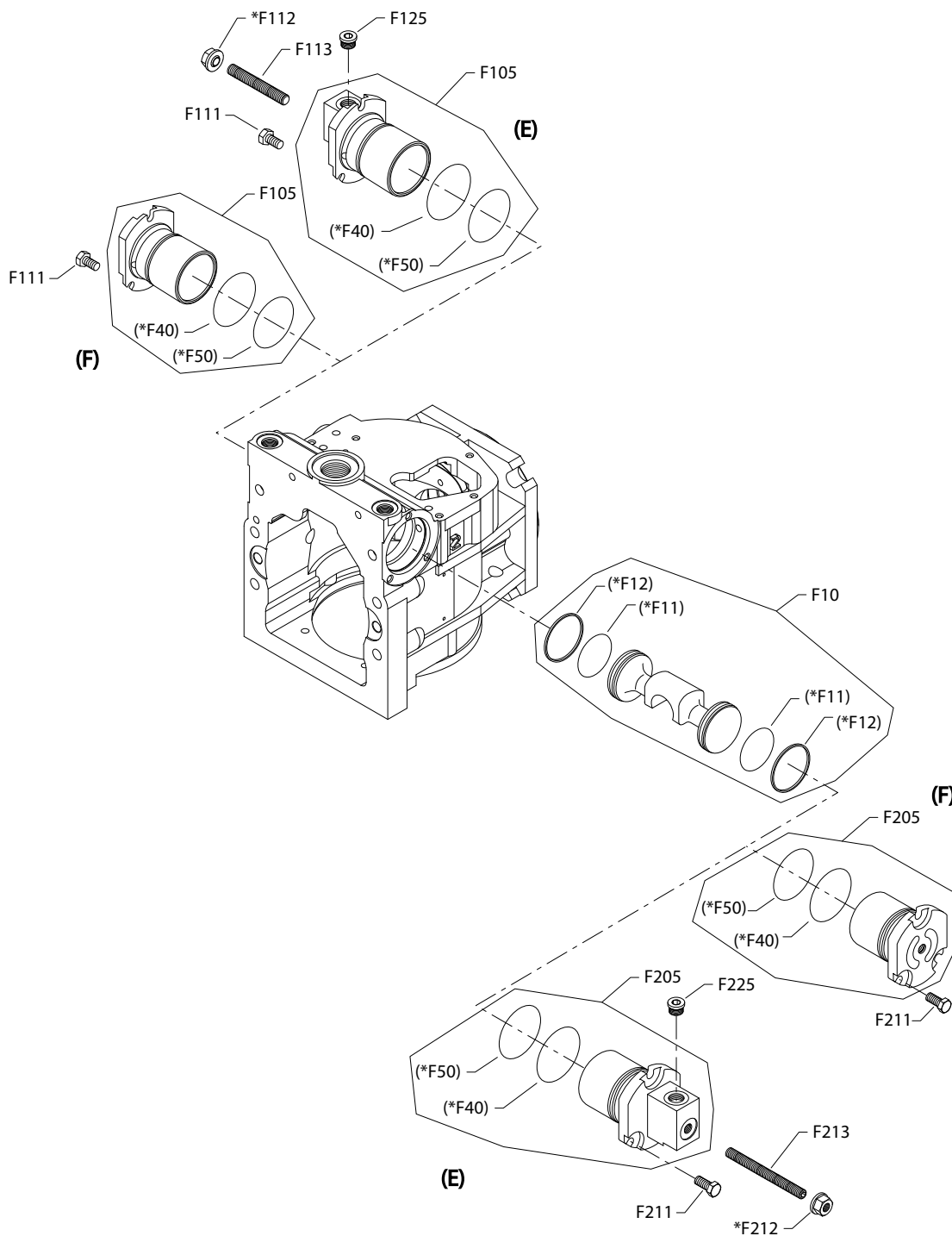
Order code: D

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F10	98-18		11044946	Servo piston assembly	1
F015	98-18		346031	Screw	1
F016	98-18		507096	Spring guide	1
F017	98-18		345967	Servo spring housing	1
F018	98-18		351742	Spring	1
F019	98-18		507094	Spring guide	1
F020	98-18		505826	Retaining ring	1
F021	98-18		507045	Castle nut	1
F022	98-18		346015	Nut	1
F023	98-18		11140221	Adjusting screw	1
F100	98-18		515327 (8200532)	Servo assembly	1
F105	98-18		11059762	Servo cylinder assembly, automotive control	1
F111	98-18		378083	Screw	3
F124	98-18		066159	Seal nut	1
F205	98-18		11060704	Servo cylinder assembly	1
F211	98-18		746651	Screw	3
F212	98-18		505412 (9003509-0008)	Seal nut	1
F213	98-18		5000747	Set screw ( <a href="#">SB-2000-022</a> on page 304)	1

**Displacement limitation**

**S90 100cc pump displacement limitation E, F**

*Parts configuration*



\* Included in base pump seal kit Q210

( ) Not available individually

## Displacement limitation

Order code: E

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F10	97-44		511613	Servo piston assembly ( <a href="#">SB-2000-022</a> on page 304)	1
F105	97-44		11059761	Servo cylinder assembly	1
F111	97-44		746651	Screw	3
F112	97-44		336826 (9003508-0010)	Seal nut	1
F113	97-44		733691	Set screw	1
F125	97-44		091033	Plug assembly	1
F205	97-44		11059761	Servo cylinder assembly	1
F211	97-44		746651 (9007210-0804)	Screw	3
F212	97-44		336826 (9003508-0010)	Seal nut	1
F213	97-44		733691	Set screw	1
F225	97-44		091033	Plug assembly	1

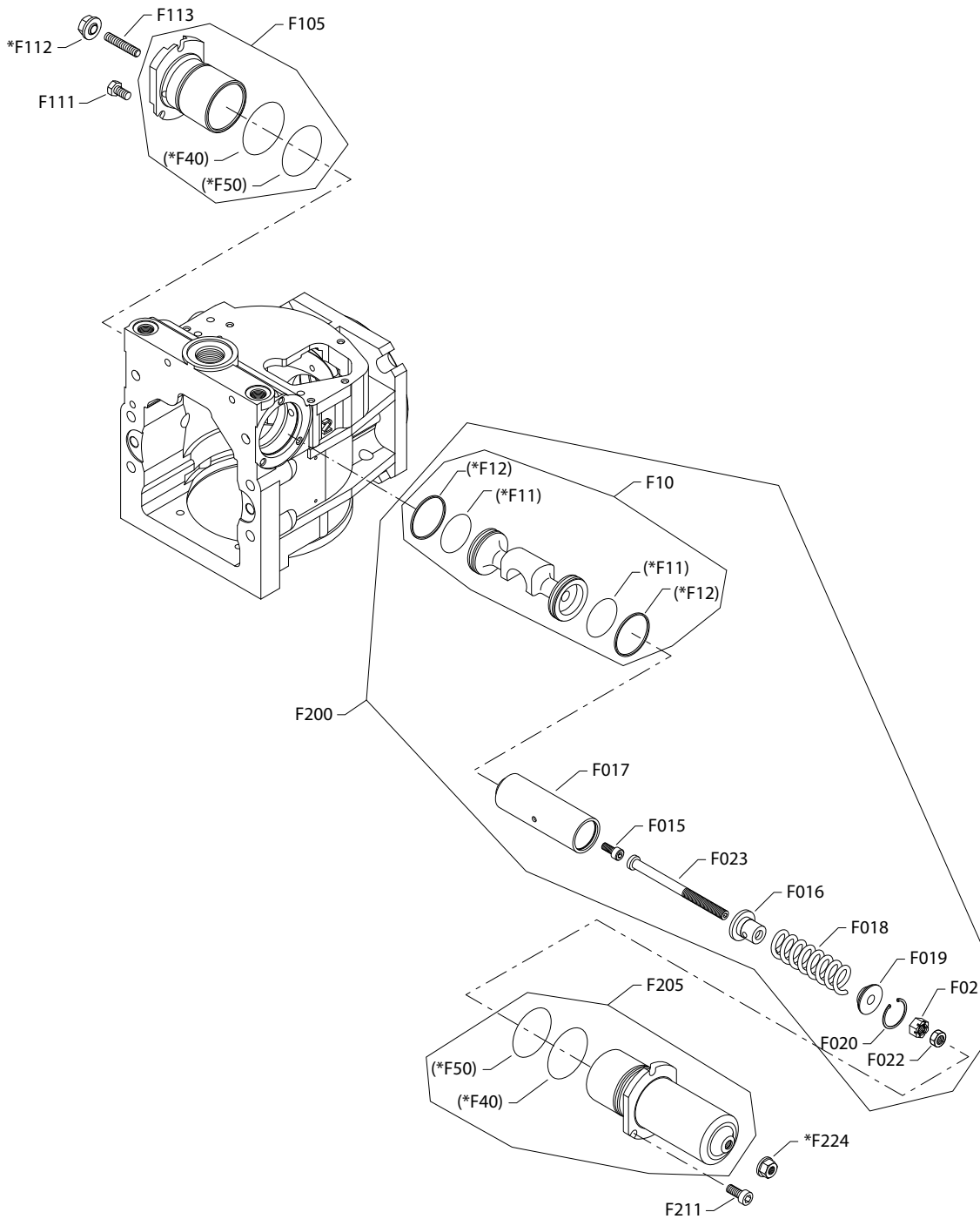
Order code: F

F10	91-30		11044943	Servo piston assembly ( <a href="#">SB-2000-022</a> on page 304)	1
F105	91-30		11055773	Servo cylinder assembly	1
F111	91-30		378083 (9007210-0804)	Screw	3
F205	91-30		11055773	Servo cylinder assembly	1
F211	91-30		378083 (9007210-0804)	Screw	3

**Displacement limitation**

**S90 100cc pump displacement limitation H**

*Parts configuration*



\* Included in base pump seal kit Q210

() Not available individually



## Displacement limitation

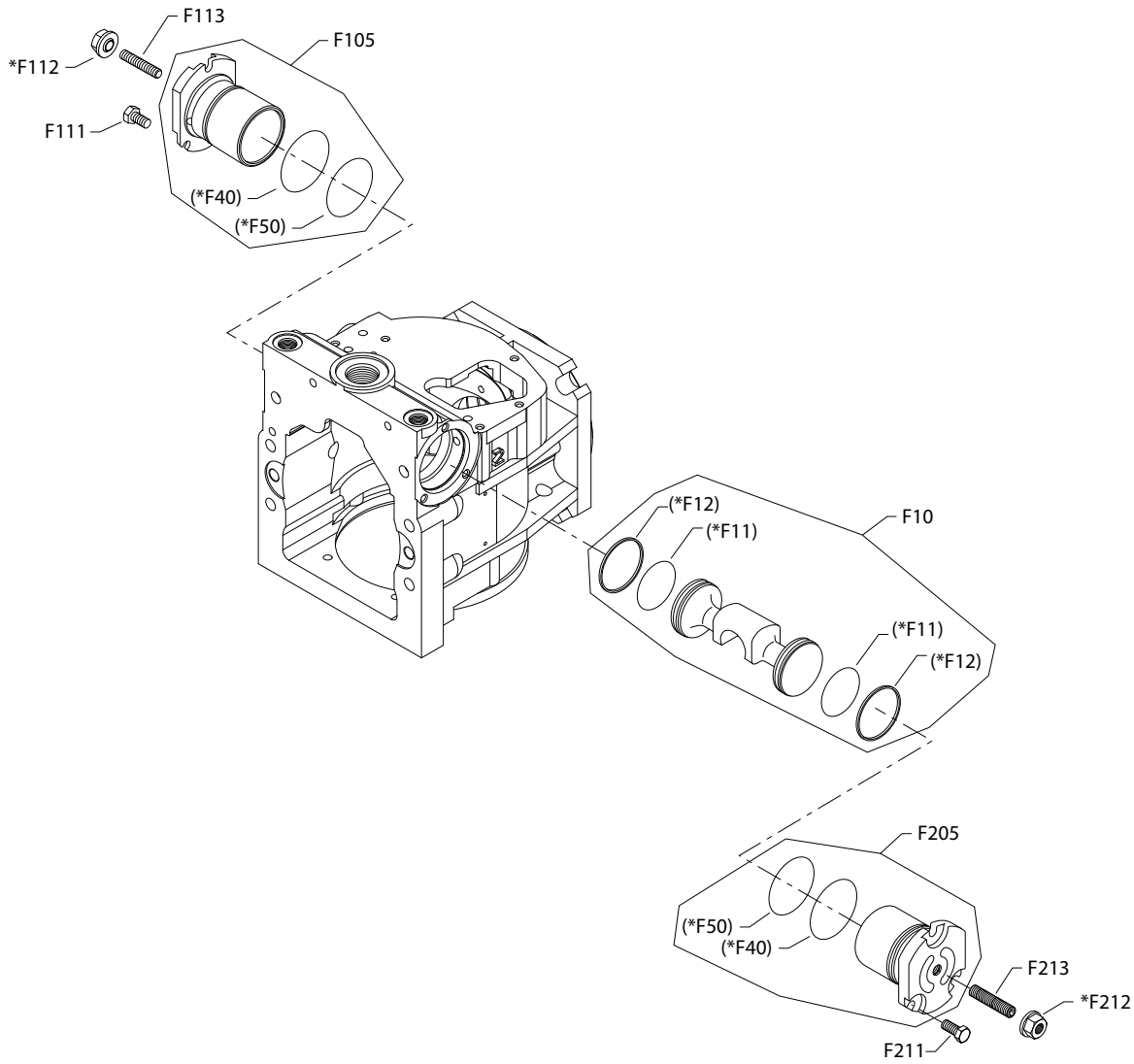
Order code: H

Item	Date Begin	Date Begin	Part Number	Part Name	Qty. per Model/Kit
F10	98-18		11044946	Servo piston assembly	1
F015	98-18		346031	Screw	1
F016	98-18		507096	Spring guide	1
F017	98-18		345967	Servo spring housing	1
F018	98-18		351742	Spring	1
F019	98-18		507094	Spring guide	1
F020	98-18		505826	Retaining ring	1
F021	98-18		507045	Castle nut	1
F022	98-18		346015	Nut	1
F023	98-18		11140221	Adjusting screw	1
F105	98-18		11060704 (11055771)	Servo cylinder assembly	1
F111	98-18		746651	Screw	3
F112	98-18		505412 (9003509-0008)	Seal nut	1
F113	98-18		5000747	Set screw, M8 x 45mm, <a href="#">(SB-2000-022</a> on page 304)	1
F200	98-18		515327 (8200532)	Servo assembly	1
F205	98-18		11059762 (11055776)	Servo cylinder assembly	1
F211	98-18		378083 (9007210-0804)	Screw	3
F224	98-18		066159	Seal nut	1

**Displacement limitation**

**S90 100cc pump displacement limitation P**

*Parts configuration*



\* Included in base pump seal kit Q210

() Not available individually

### Displacement limitation

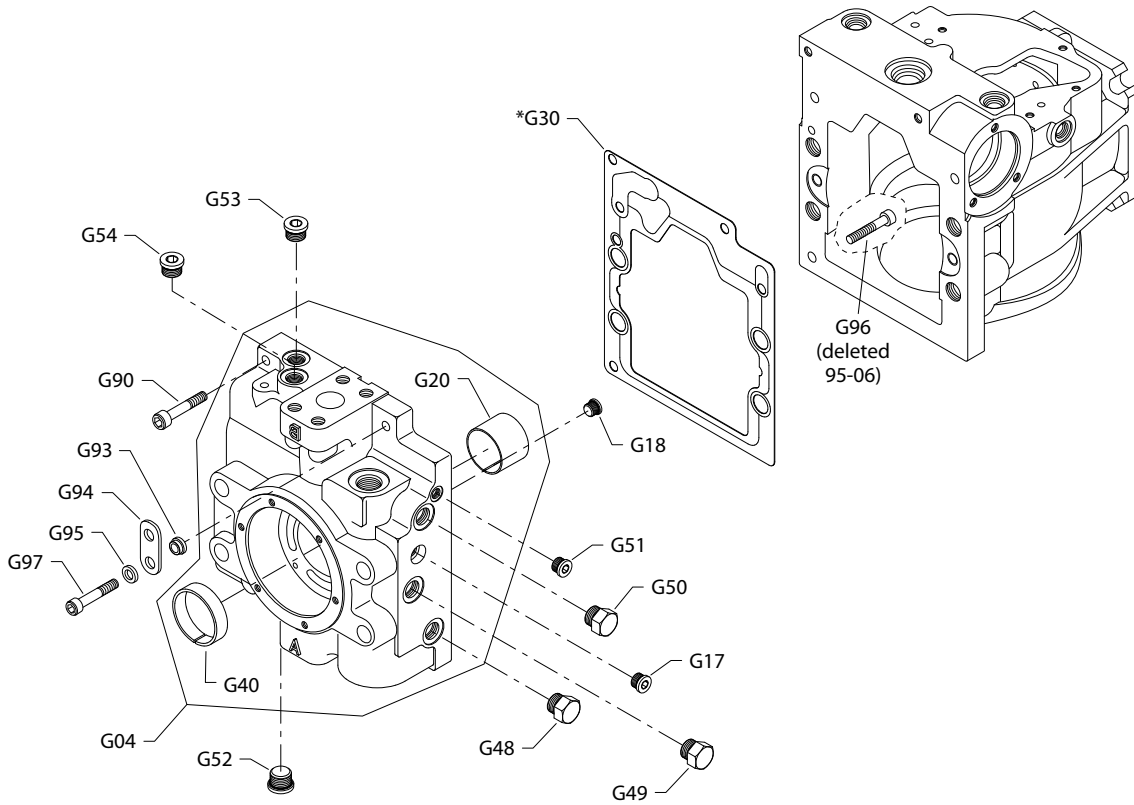
Order code: P

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F10	03-16		11044943	Servo piston assembly ( <a href="#">SB-2009-035</a> on page 319)	1
F105	03-16		11060704 (11055771)	Servo cylinder assembly	1
F111	03-16		378083 (9007210-0804)	Screw	3
F112	03-16		505412 (9003509-0008)	Seal nut	1
F113	03-16		11001516	Set screw	1
F205	03-16		11060704 (11055771)	Servo cylinder assembly	1
F211	03-16		378083 (9007210-0804)	Screw	3
F212	03-16		505412 (9003509-0008)	Seal nut	1
F213	03-16		11001516	Set screw	1

**End cap**

**S90 100cc pump end cap H, 2, 6-65**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G17	92-12		327007 (9005110-4400)	Plug ( <a href="#">SB-1992-003</a> on page 270)	1
G18	92-12		327007 (9005110-4400)	Plug ( <a href="#">SB-1992-003</a> on page 270)	1
G20	87-02		673319 (8700030)	Journal bearing	1
G30	89-46		8200212	End cap gasket ( <a href="#">SB-1992-003</a> on page 270)	1
G30	87-02	89-45	8200043	End cap gasket ( <a href="#">SB-1989-023</a> on page 268)	1
G40	87-02		8700008	Bushing	1
G48	87-02		046151 (9005100-5600)	Plug assembly	1
G49	87-02		046151 (9005100-5600)	Plug assembly	1
G50	87-02		046151 (9005100-5600)	Plug assembly	1
G51	87-02		140644 (9005110-5600)	Plug assembly	1
G52	87-02		140644 (9005110-5600)	Plug assembly	1
G53	87-02		140644 (9005110-5600)	Plug assembly	1
G54	87-02		140644 (9005110-5600)	Plug assembly	1
G90	92-12		746644 (9007314-0810)	Screw	1
G90	89-46	92-11	694356 (9007314-0608)	Screw ( <a href="#">SB-1992-003</a> on page 270)	1
G90	87-02	89-45	331447 (9007314-0607)	Screw	1
G93	92-12		713800 (8800564)	Spacer	1
G93	87-02	92-11	307678 (8800404)	Spacer	1
G94	92-12		8800565	Lifting bracket	1
G94	87-02	92-11	8800522	Lifting bracket	1
G95	92-12		002311 (9009610-3459)	Washer	1
G95	87-02	92-11	502195	Washer	1
G96	92-12	95-06	9007314-0808	Screw ( <a href="#">SB-1994-035</a> on page 281)	1
G96	87-02	92-11	331447 (9007314-0607)	Screw ( <a href="#">SB-1992-003</a> on page 270)	1
G97	92-12		746644 (9007314-0810)	Screw	1
G97	87-02	92-11	694356 (9007314-0608)	Screw ( <a href="#">SB-1992-003</a> on page 270)	1

### Order codes: 2, 6, 60, 61

G04	92-12		8200236	End cap assembly, side ports ( <a href="#">SB-1992-003</a> on page 270)	1
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### Order codes: H, 62

G04	94-29		8200294	End cap assembly, metric side ports	1
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### Order code: 65

G04	98-11		8200284	End cap assembly, metric side ports	1
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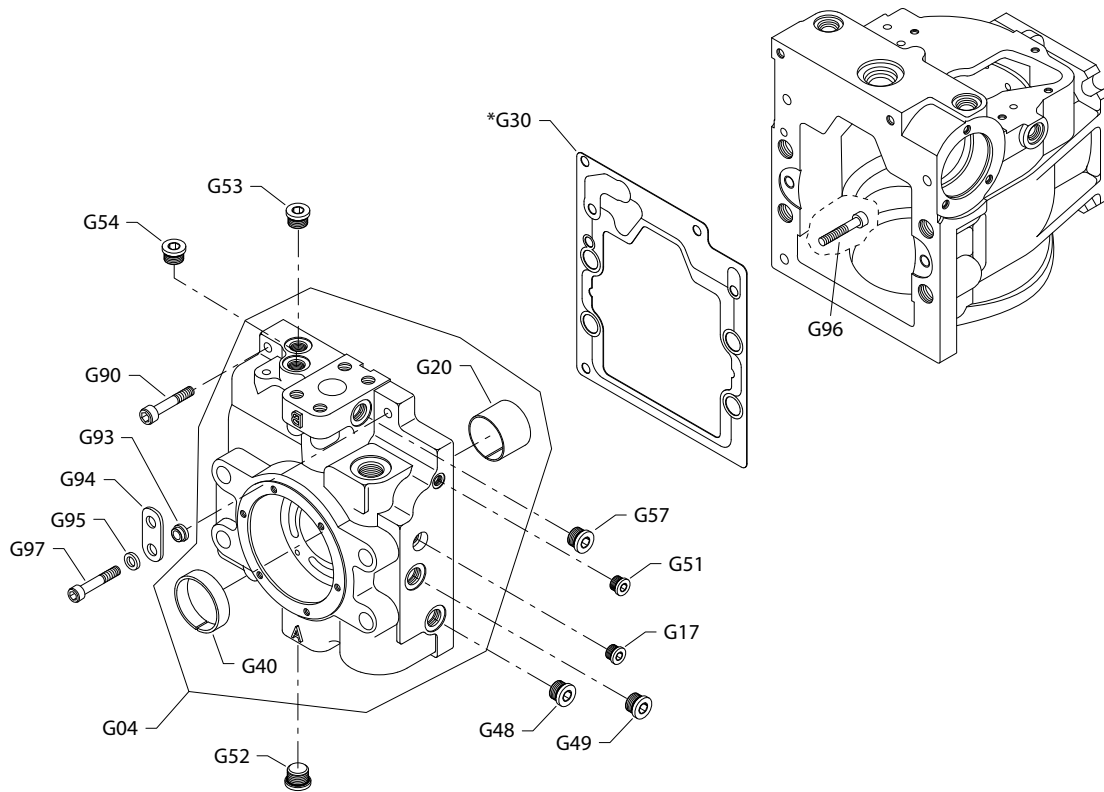
### Order code: 6P

G04	98-13		8200388	End cap assembly, side ports, CW	1
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**End cap**

**S90 100cc pump end cap 60, 62, 67**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G17	94-24		140644	Plug assembly	1
G20	94-24		673319 (8700030)	Journal bearing	1
G30	94-24		8200212	End cap gasket	1
G40	94-24		664771	Bushing	1
G48	94-24		140644	Plug assembly	1
G49	94-24		140644	Plug assembly	1
G51	94-24		327007 (9005110-4400)	Plug assembly	1
G52	94-24		140644	Plug assembly	1
G53	94-24		140644	Plug assembly	1
G54	94-24		140644	Plug assembly	1
G57	94-24		140644	Plug assembly	1
G90	94-24		746644 (9007314-0810)	Screw	1
G93	94-24		713800 (8800564)	Spacer	1
G94	94-24		8800565	Lifting bracket	1
G95	94-24		502195	Washer	1
G96	94-24		746594 (9007314-0807)	Screw	1
G97	94-24		746644 (9007314-0810)	Screw	1

### Order code: 60

G04	94-24		505048	End cap assembly, side ports	1
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### Order code: 62

G04	99-12		506442	End cap assembly, metric side ports	1
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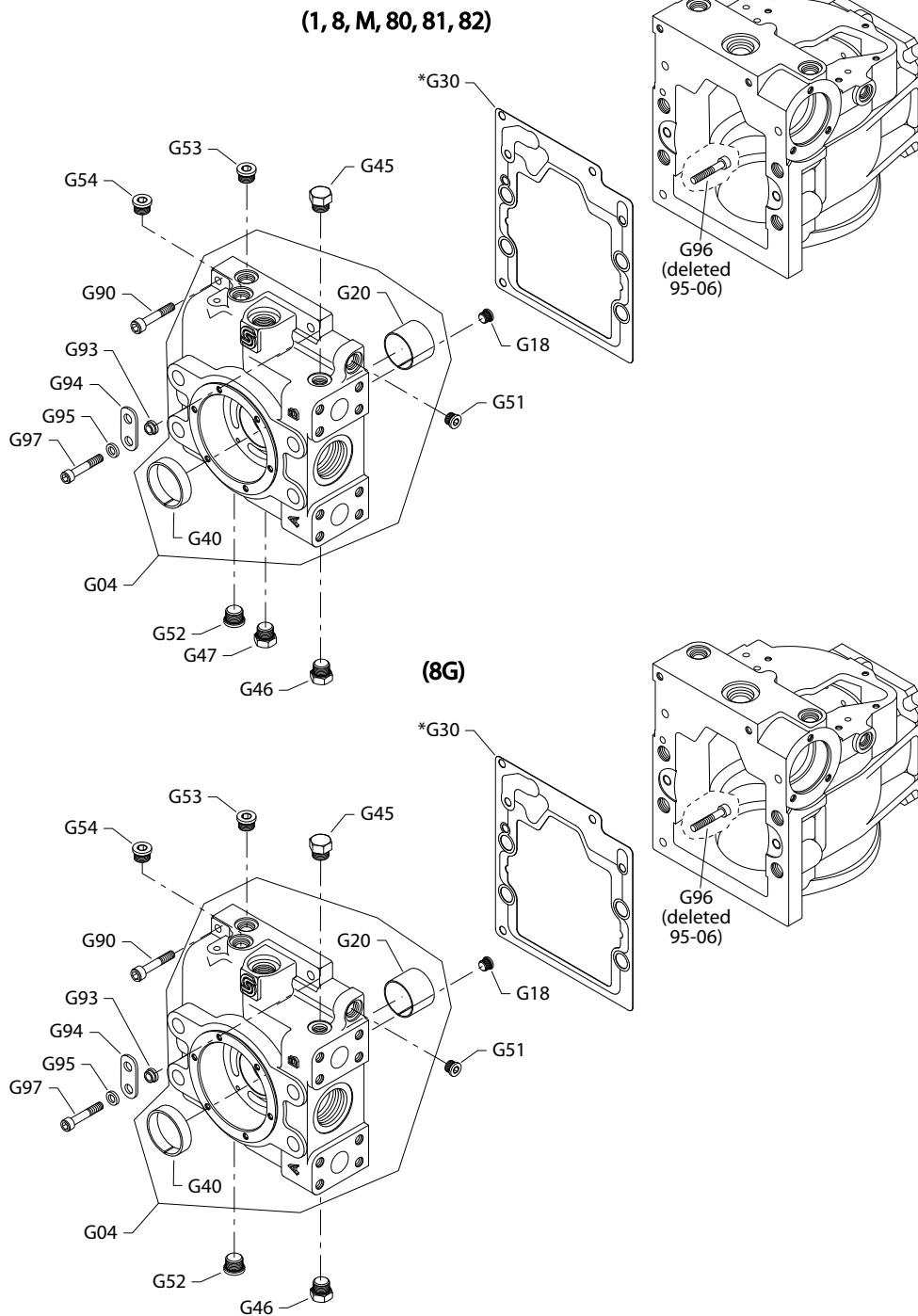
### Order code: 67

G04	96-03		505052/P	End cap assembly, metric side ports	1
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**End cap**

**S90 100cc pump end cap 1, 8, 8G, M, 80-82**

*Parts configuration*





## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G20	87-02		673319 (8700030)	Journal bearing	1
G30	87-02		8200212	End cap gasket	1
G40	87-02		664771 (8700008)	Bushing	1
G46	87-02		046151 (9005100-5600)	Plug assembly	1
G90	87-02		746644 (9007314-0810)	Screw	1
G93	87-02		713800 (8800564)	Spacer	1
G94	87-02		8800565	Lifting bracket	1
G95	87-02		502195	Washer	1
G97	87-02		746644 (9007314-0810)	Screw	1

### Order codes: 1, 8, 80, 81

G04	92-12		8200235	End cap assembly	1
G45	87-02		046151 (9005100-5600)	Plug assembly	1
G47	87-02		046151 (9005100-5600)	Plug assembly	1
G51	87-02		140644 (9005110-5600)	Plug assembly	1
G52	87-02		140644 (9005110-5600)	Plug assembly	1
G53	87-02		140644 (9005110-5600)	Plug assembly	1
G54	87-02		140644 (9005110-5600)	Plug assembly	1

### Order codes: M, 82

G04	94-15		8200430	End cap assembly, metric ports	1
G45	87-02		046151 (9005100-5600)	Plug assembly	1
G47	87-02		046151 (9005100-5600)	Plug assembly	1
G51	87-02		140644 (9005110-5600)	Plug assembly	1
G52	87-02		140644 (9005110-5600)	Plug assembly	1
G53	87-02		140644 (9005110-5600)	Plug assembly	1
G54	87-02		140644 (9005110-5600)	Plug assembly	1

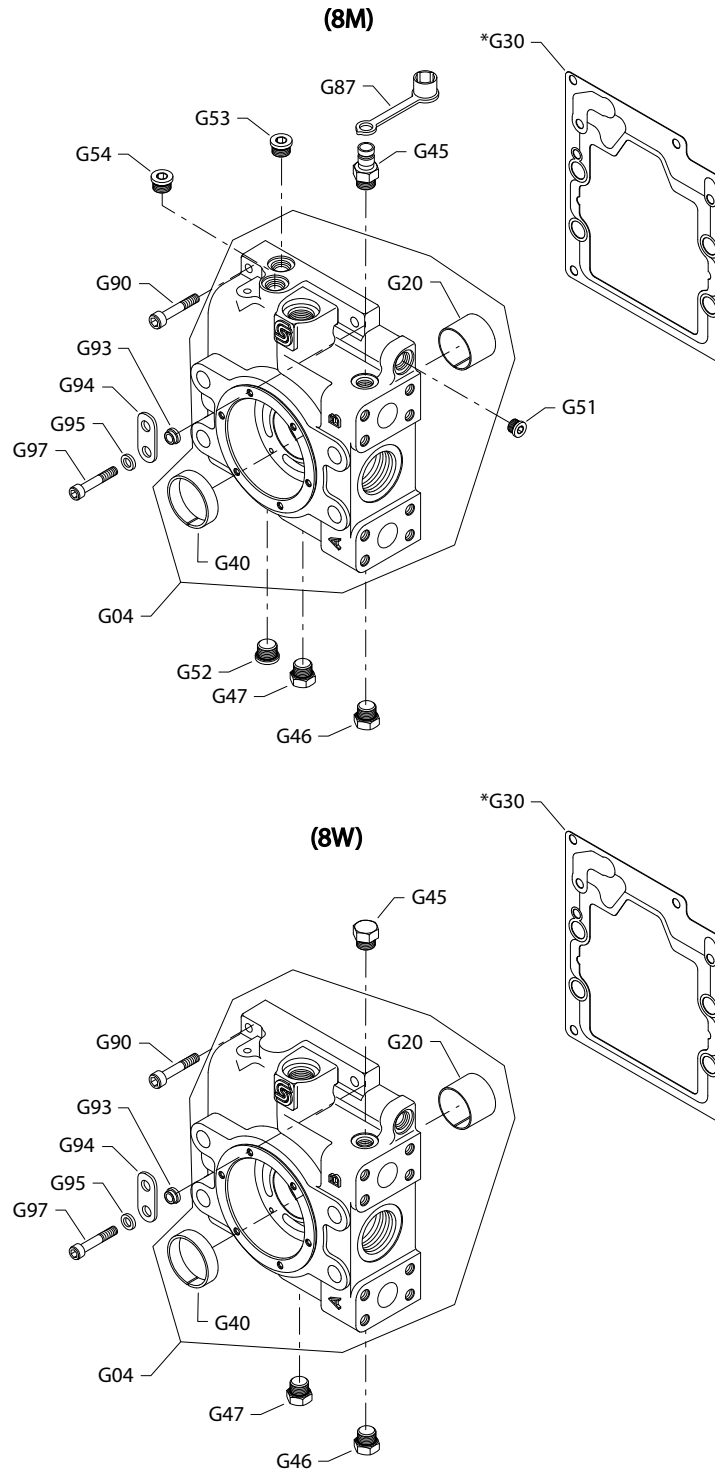
### Order code: 8G

G04	94-15		8200346	End cap assembly, no charge pump	1
G45	87-02		046151 (9005100-5600)	Plug assembly	1
G51	87-02		140644 (9005110-5600)	Plug assembly	1
G52	87-02		140644 (9005110-5600)	Plug assembly	1
G53	87-02		140644 (9005110-5600)	Plug assembly	1
G54	87-02		140644 (9005110-5600)	Plug assembly	1

**End cap**

**S90 100cc pump end cap 8M, 8W**

Parts configuration



\* Included in base pump seal kit Q210

## End cap

Order code: 8M

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G04	97-26		8200235	End cap assembly	1
G20	97-26		673319 (8700030)	Journal bearing	1
G30	97-26		8200212	End cap gasket	1
G40	97-26		664771 (8700008)	Bushing	1
G45	97-26		8700127	Diagnostic receptacle	1
G46	97-26		046151 (9005100-5600)	Plug assembly	1
G47	97-26		046151 (9005100-5600)	Plug assembly	1
G51	97-26		140644 (9005110-5600)	Plug assembly	1
G52	97-26		140644 (9005110-5600)	Plug assembly	1
G53	97-26		140644 (9005110-5600)	Plug assembly	1
G54	97-26		140644 (9005110-5600)	Plug assembly	1
G87	97-26		8700128	Dust cover	1
G90	97-26		746644 (9007314-0810)	Screw	1
G93	97-26		713800 (8800564)	Spacer	1
G94	97-26		8800565	Lifting bracket	1
G95	97-26		002311 (9009610-3459)	Washer	1
G97	97-26		746644 (9007314-0810)	Screw	1

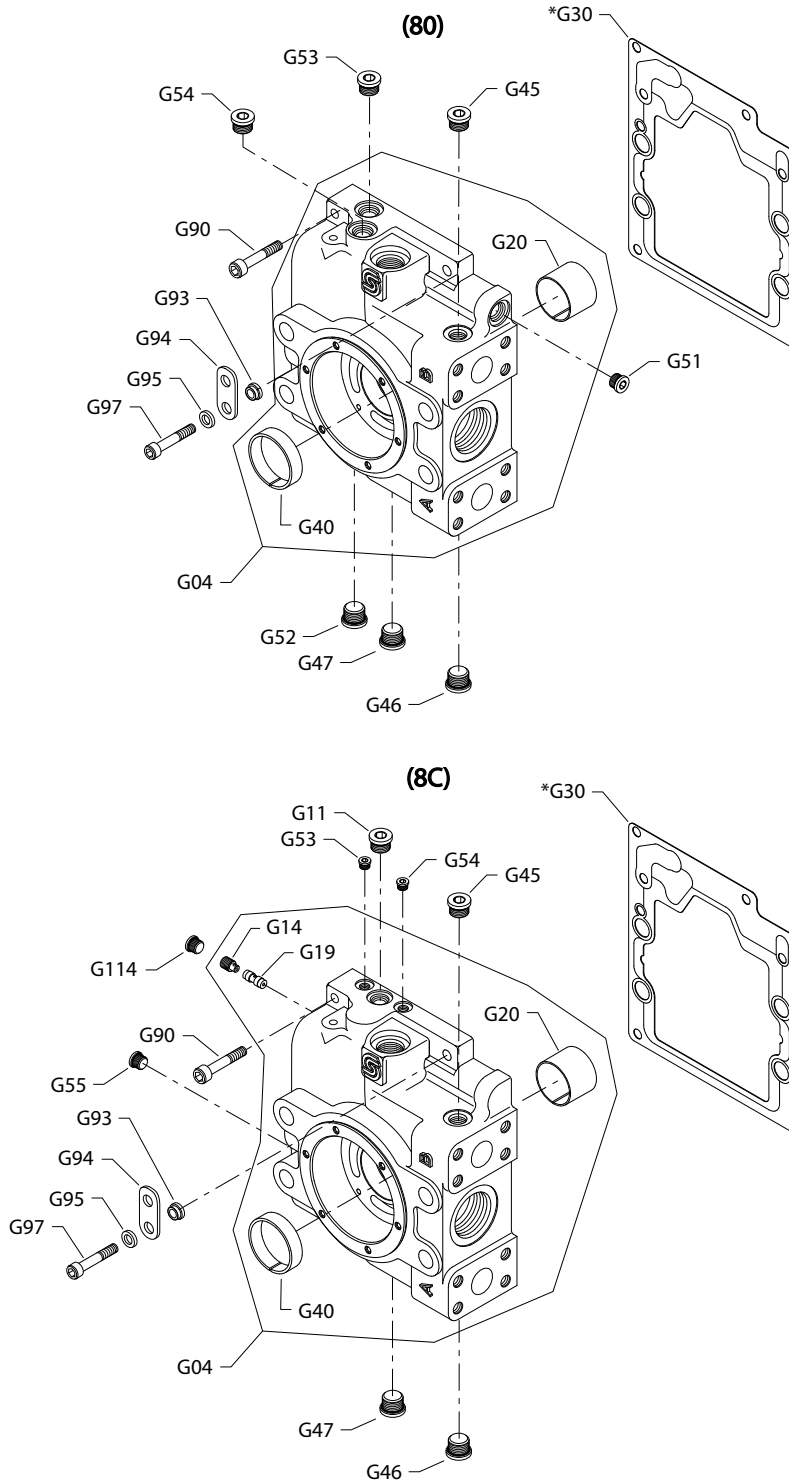
Order code: 8W

G04	03-35		8200541	End cap assembly, CW	1
G20	03-35		673319 (8700030)	Journal bearing	1
G30	03-35		8200212	End cap gasket	1
G40	03-35		664771 (8700008)	Bushing	1
G45	03-35		046151 (9005100-5600)	Plug assembly	1
G46	03-35		046151 (9005100-5600)	Plug assembly	1
G47	03-35		046151 (9005100-5600)	Plug assembly	1
G90	03-35		746644 (9007314-0810)	Screw	1
G93	03-35		713800 (8800564)	Spacer	1
G94	03-35		8800565	Lifting bracket	1
G95	03-35		002311 (9009610-3459)	Washer	1
G97	03-35		746644 (9007314-0810)	Screw	1

**End cap**

**S90 100cc pump end cap 80, 8C**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G20	87-02		673319 (8700030)	Journal bearing	1
G30	87-02		8200212	End cap gasket	1
G40	87-02		664771 (8700008)	Bushing	1
G90	87-02		746644 (9007314-0810)	Screw	1
G93	87-02		713800 (8800564)	Spacer	1
G94	87-02		8800565	Lifting bracket	1
G95	87-02		002311 (9009610-3459)	Washer	1
G97	87-02		746644 (9007314-0810)	Screw	1

### Order code: 80

G04	92-12		777490	End cap assembly	1
G45	87-02		140644	Plug assembly	1
G46	87-02		140644	Plug assembly	1
G47	87-02		140644	Plug assembly	1
G51	87-02		140644	Plug assembly	1
G52	87-02		140644	Plug assembly	1
G53	87-02		140644	Plug assembly	1
G54	87-02		140644	Plug assembly	1

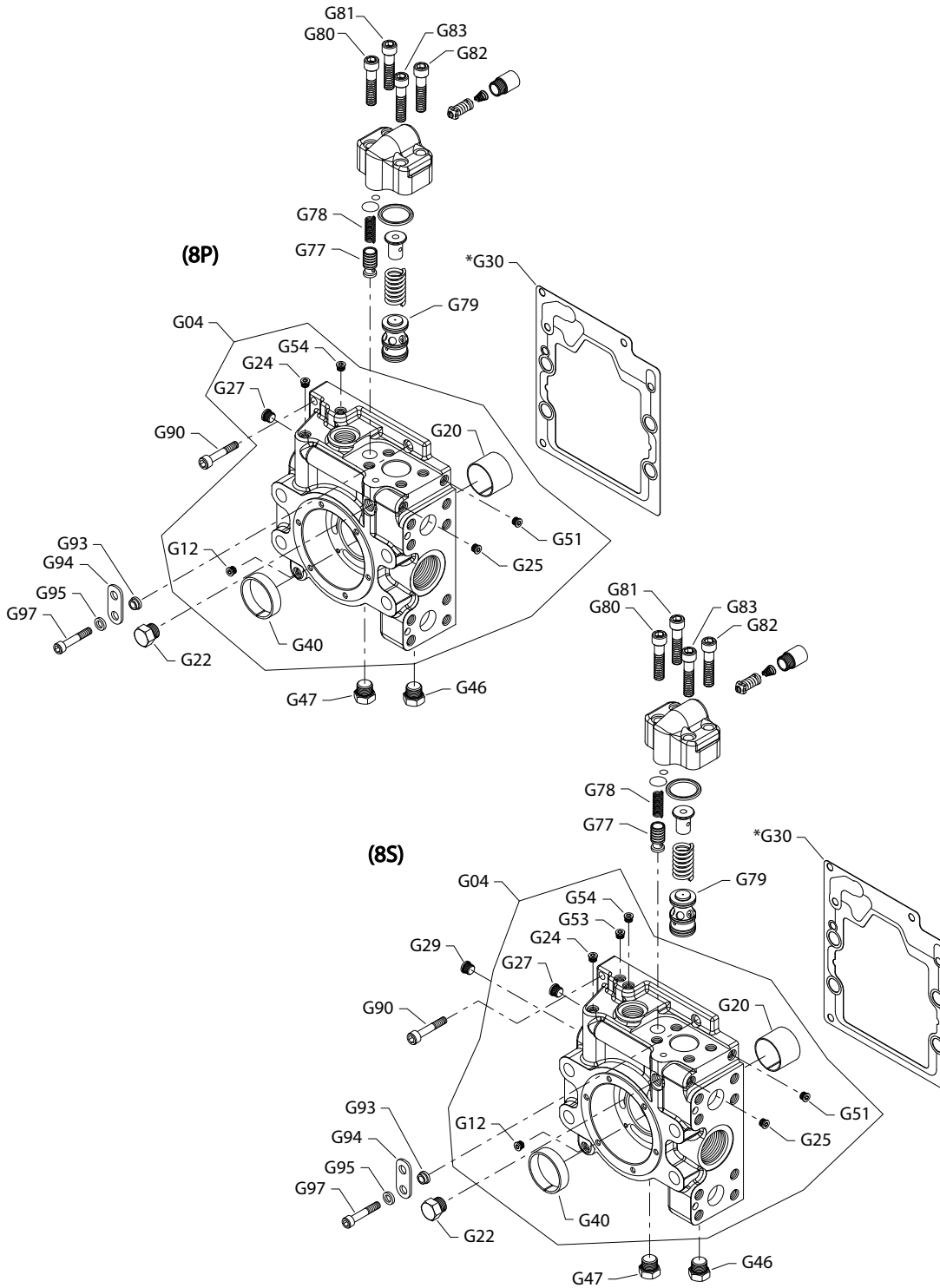
### Order code: 8C

G04	94-15	14-41	508814	End cap assembly	1
G11	87-02	14-41	140644	Plug assembly	1
G45	87-02	14-41	140644	Plug assembly	1
G46	87-02	14-41	140644	Plug assembly	1
G47	87-02	14-41	140644	Plug assembly	1
G53	87-02	14-41	327007 (9005110-4400)	Plug assembly	1
G54	87-02	14-41	327007 (9005110-4400)	Plug assembly	1
G55	87-02	14-41	327007 (9005110-4400)	Plug assembly	1
G114	87-02	14-41	327007 (9005110-4400)	Plug assembly	1

**End cap**

**S90 100cc pump end cap 8P, 8S**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G20	08-09		673319 (8700030)	Journal bearing	1
G30	08-09		8200212	End cap gasket	1
G40	08-09		664771 (8700008)	Bushing	1
G93	08-09		713800 (8800564)	Spacer	1
G94	08-09		8800565	Lifting bracket	1
G95	08-09		002311 (9009610-3459)	Washer	1

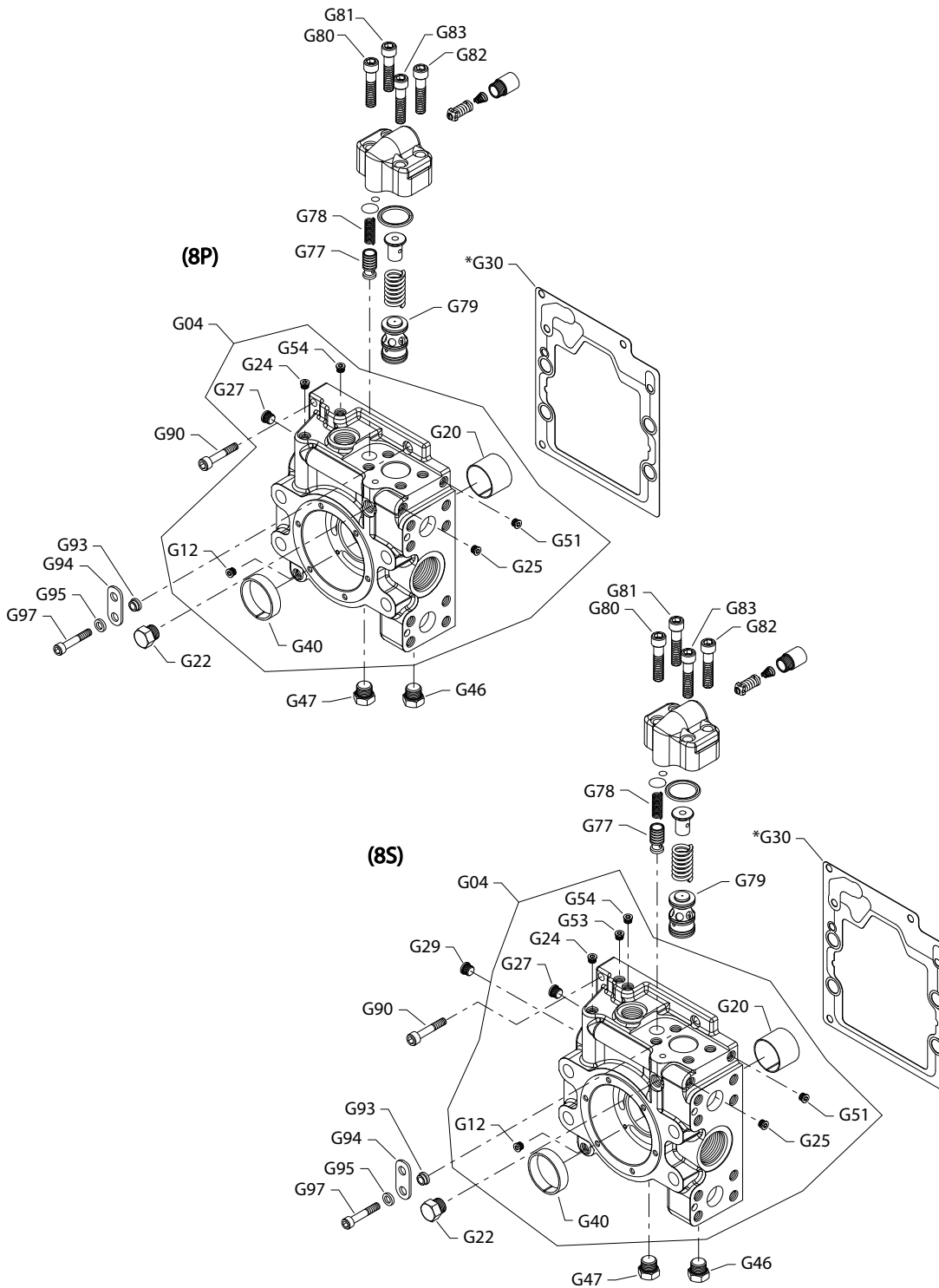
### Order code: 8P

G04	08-09		11034378	End cap assembly, CCW	1
G12	08-09		11040532	Plug assembly	1
G22	08-09		046151 (9005100-5600)	Plug assembly	1
G24	08-09		11040532	Plug assembly	1
G25	08-09		11040532	Plug assembly	1
G27	08-09		11040532	Plug assembly	1
G46	08-09		046151 (9005100-5600)	Plug assembly	1
G47	08-09		046151 (9005100-5600)	Plug assembly	1
G51	08-09		11040532	Plug assembly	1
G54	08-09		11040532	Plug assembly	1
G77	08-09		517830	Valve spool	1
G78	08-09		517832	Spring	1
G79	08-09		11034287	Valve spool	1
G80	08-09		504681	Screw	1
G81	08-09		504681	Screw	1
G82	08-09		504681	Screw	1
G83	08-09		504681	Screw	1
G90	08-09		9007314-0812	Screw	1
G97	08-09		506969	Screw	1

[Parts continue to the next 2 pages.](#)

**End cap**

*Parts configuration*



\* Included in base pump seal kit Q210



## End cap

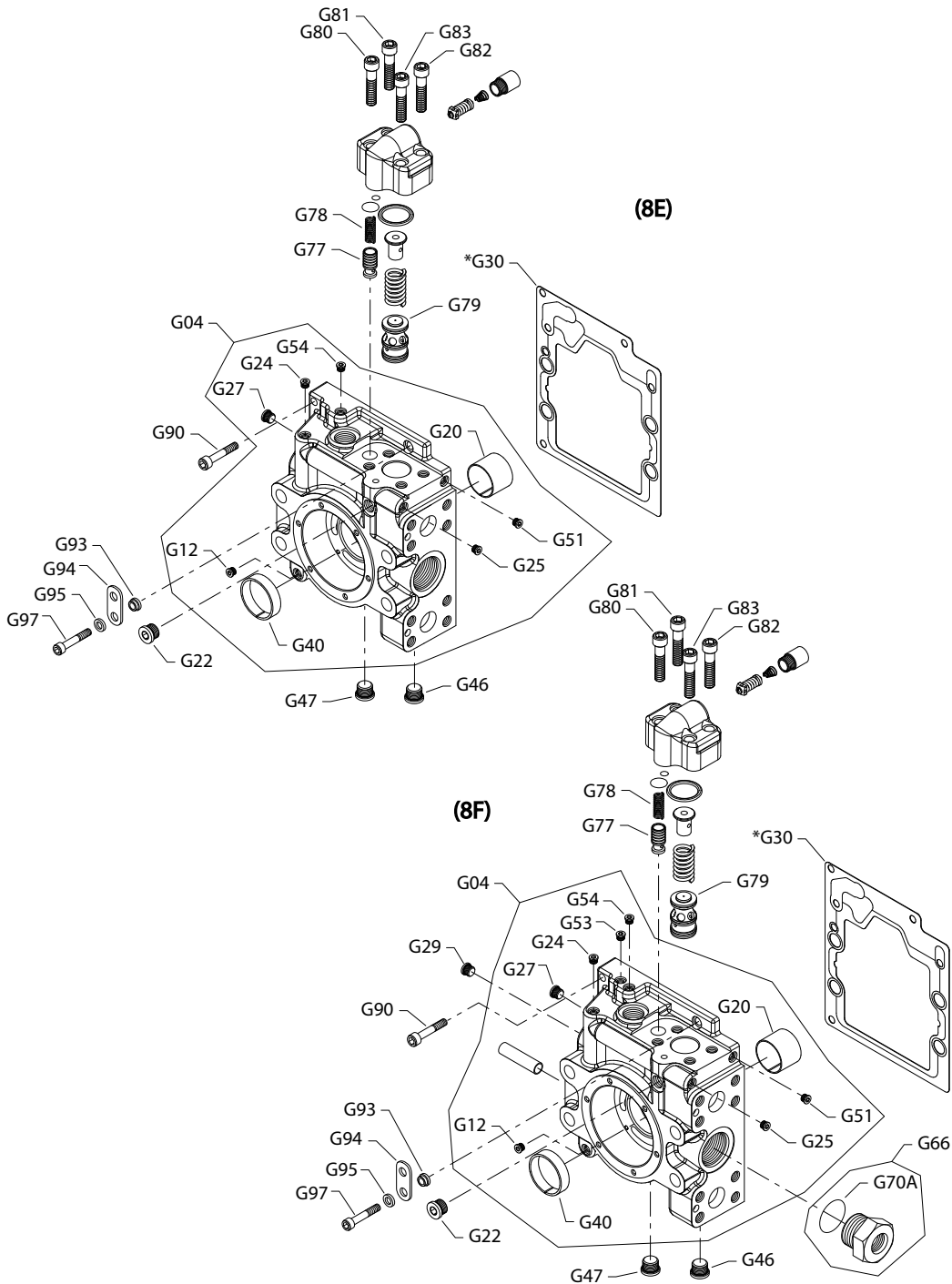
Order code: 8S

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G04	09-30		11068445	End cap assembly, CW	1
G12	09-30		11040532	Plug assembly	1
G22	09-30		046151 (9005100-5600)	Plug assembly	1
G24	09-30		11040532	Plug assembly	1
G25	09-30		11040532	Plug assembly	1
G27	09-30		11040532	Plug assembly	1
G29	09-30		327007 (9005110-4400)	Plug assembly	1
G46	09-30		046151 (9005100-5600)	Plug assembly	1
G47	09-30		046151 (9005100-5600)	Plug assembly	1
G51	09-30		11040532	Plug assembly	1
G53	09-30		11040532	Plug assembly	1
G54	09-30		11040532	Plug assembly	1
G77	09-30		517830	Valve spool	1
G78	09-30		517832	Spring	1
G79	09-30		11068446	Valve spool	1
G80	09-30		504681	Screw	1
G81	09-30		504681	Screw	1
G82	09-30		504681	Screw	1
G83	09-30		504681	Screw	1
G90	09-30		9007314-0812	Screw	1
G97	09-30		506969	Screw	1

**End cap**

**S90 100cc pump end cap 8E, 8F**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G20	02-30		673319 (8700030)	Journal bearing	1
G30	02-30		8200212	End cap gasket	1
G40	02-30		664771 (8700008)	Bushing	1
G93	02-30		713800 (8800564)	Spacer	1
G94	02-30		8800565	Lifting bracket	1
G95	02-30		502195	Washer	1

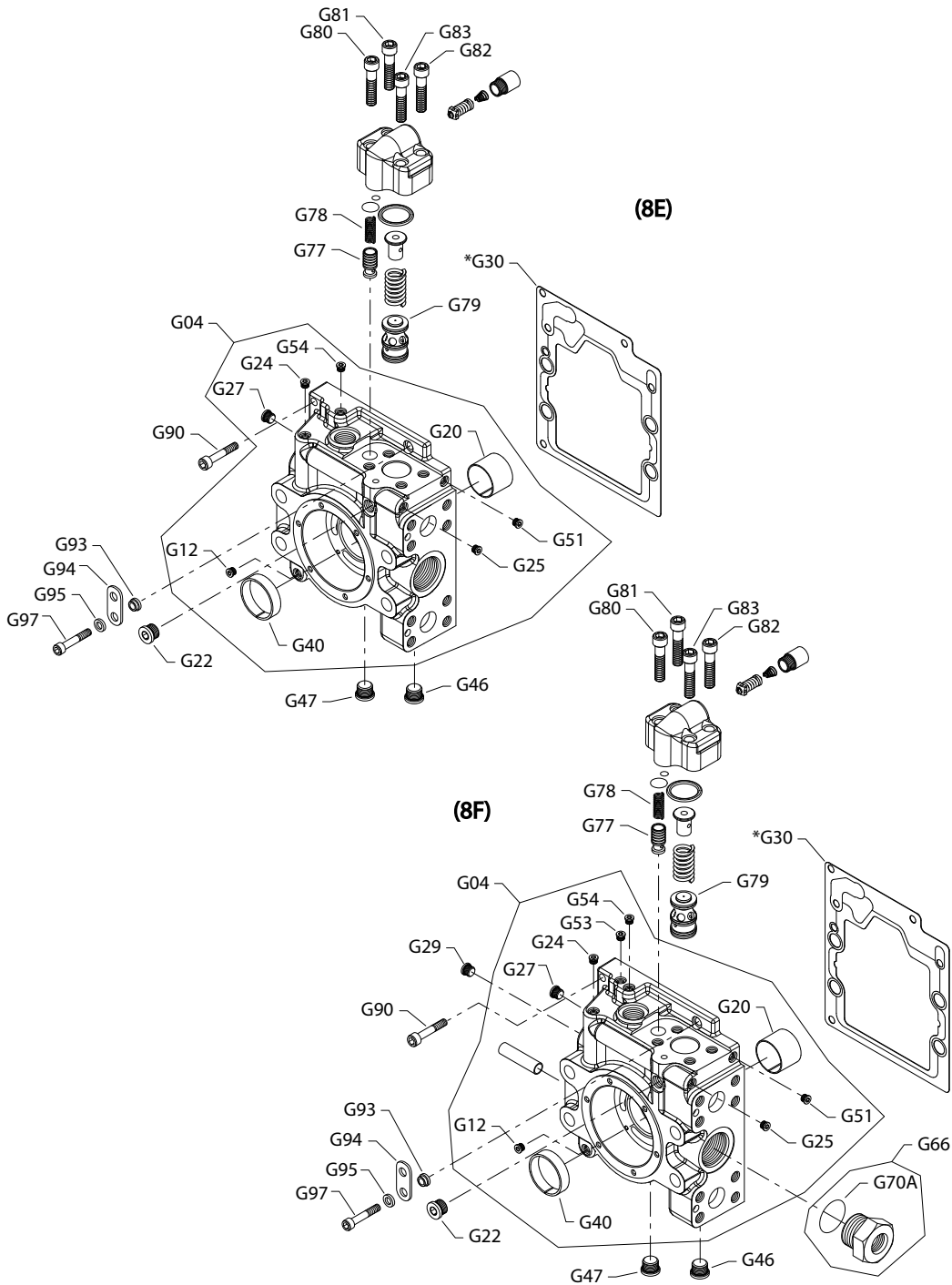
### Order code: 8E

G04	02-30		11093581	End cap assembly, CCW	1
G12	02-30		11040532	Plug assembly	1
G22	02-30		140644	Plug assembly	1
G24	02-30		11040532	Plug assembly	1
G25	02-30		11040532	Plug assembly	1
G27	02-30		11040532	Plug assembly	1
G46	02-30		140644	Plug assembly	1
G47	02-30		140644	Plug assembly	1
G51	02-30		11040532	Plug assembly	1
G54	02-30		11040532	Plug assembly	1
G77	02-30		517830	Valve spool	1
G78	02-30		517832	Spring	1
G79	02-30		517827	Valve spool	1
G80	02-30		504681	Screw	1
G81	02-30		504681	Screw	1
G82	02-30		504681	Screw	1
G83	02-30		504681	Screw	1
G90	02-30		713768	Screw	1
G97	02-30		506969	Screw	1

[Parts continue to the next 2 pages.](#)

**End cap**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

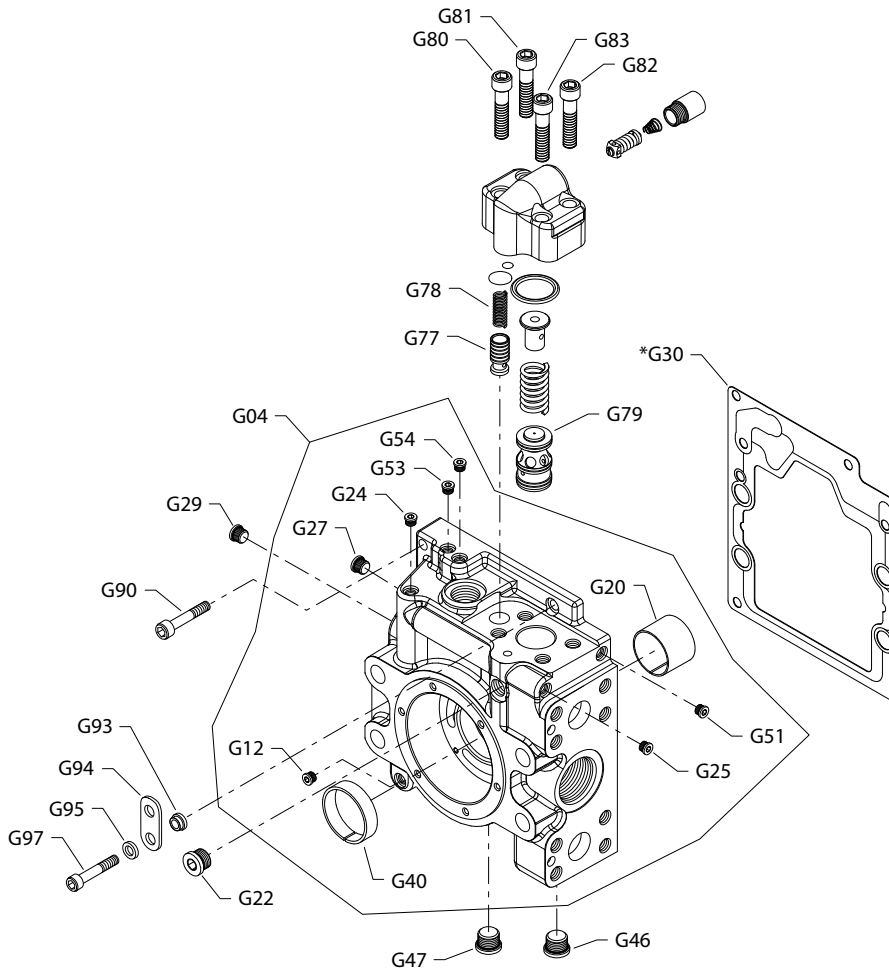
Order code: 8F

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G04	02-30		11093577	End cap assembly, CW	1
G12	02-30		11040532	Plug assembly	1
G22	02-30		140644	Plug assembly	1
G24	02-30		11040532	Plug assembly	1
G25	02-30		11040532	Plug assembly	1
G27	02-30		11040532	Plug assembly	1
G29	02-30		327007 (9005110-4400)	Plug assembly	1
G46	02-30		140644	Plug assembly	1
G47	02-30		140644	Plug assembly	1
G51	02-30		11040532	Plug assembly	1
G53	02-30		11040532	Plug assembly	1
G54	02-30		11040532	Plug assembly	1
G66	02-30		521318	Reducer assembly	1
G70A	02-30		093823	O-ring	1
G77	02-30		517830	Valve spool	1
G78	02-30		517832	Spring	1
G79	02-30		517827	Valve spool	1
G80	02-30		504681	Screw	1
G81	02-30		504681	Screw	1
G82	02-30		504681	Screw	1
G83	02-30		504681	Screw	1
G90	02-30		713768	Screw	1
G97	02-30		506969	Screw	1

**End cap**

**S90 100cc pump end cap 8K, 8N**

*Parts configuration*



\* Included in base pump seal kit Q210

## End cap

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G30	07-45		8200212	End cap gasket	1
G40	07-45		664771 (8700008)	Bushing	1
G93	07-45		713800 (8800564)	Spacer	1
G94	07-45		8800565	Lifting bracket	1
G95	07-45		502195	Washer	1

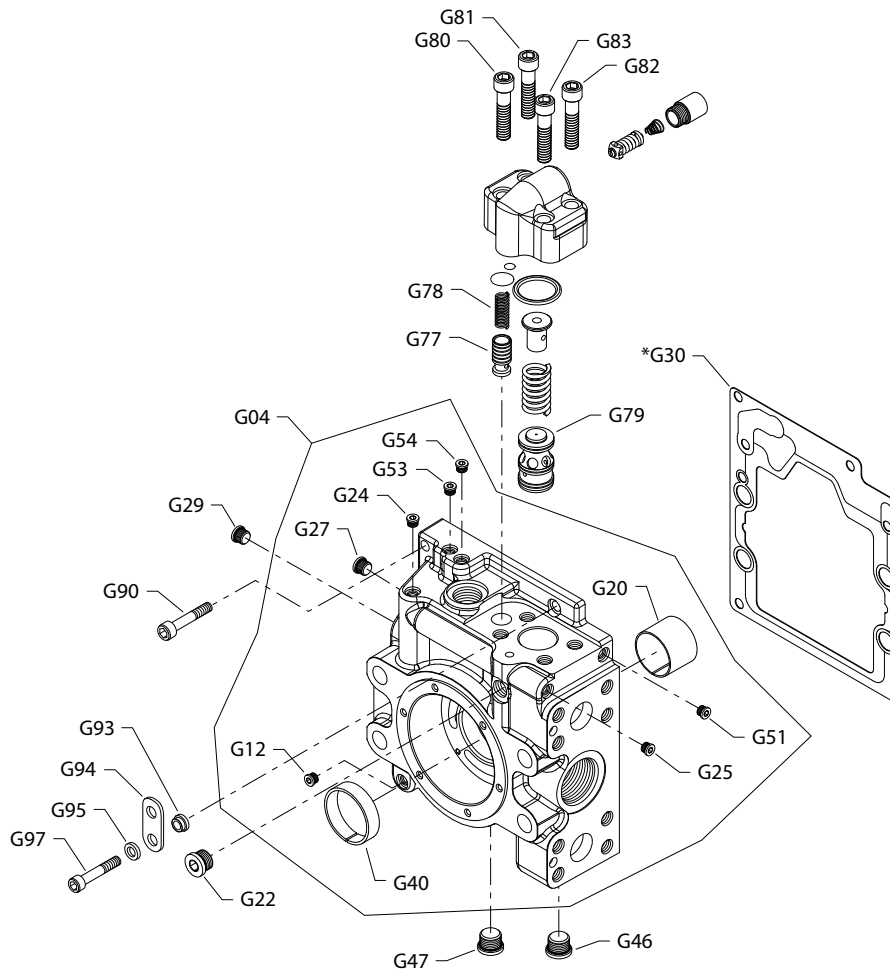
### Order code: 8K

G04	07-45		11093211	End cap assembly, CCW	1
G12	07-45		11040532	Plug assembly	1
G22	07-45		140644	Plug assembly	1
G24	07-45		11040532	Plug assembly	1
G25	07-45		11040532	Plug assembly	1
G27	07-45		11040532	Plug assembly	1
G29	07-45		327007 (9005110-4400)	Plug assembly	1
G46	07-45		140644	Plug assembly	1
G47	07-45		140644	Plug assembly	1
G51	07-45		11040532	Plug assembly	1
G53	07-45		11040532	Plug assembly	1
G54	07-45		11040532	Plug assembly	1
G77	07-45		517830	Valve spool	1
G78	07-45		517832	Spring	1
G79	07-45		517827	Valve spool	1
G80	07-45		504681	Screw	1
G81	07-45		504681	Screw	1
G82	07-45		504681	Screw	1
G83	07-45		504681	Screw	1
G90	07-45		713768	Screw	1
G97	07-45		506969	Screw	1

[Parts continue to the next 2 pages.](#)

**End cap**

*Parts configuration*



\* Included in base pump seal kit Q210



## End cap

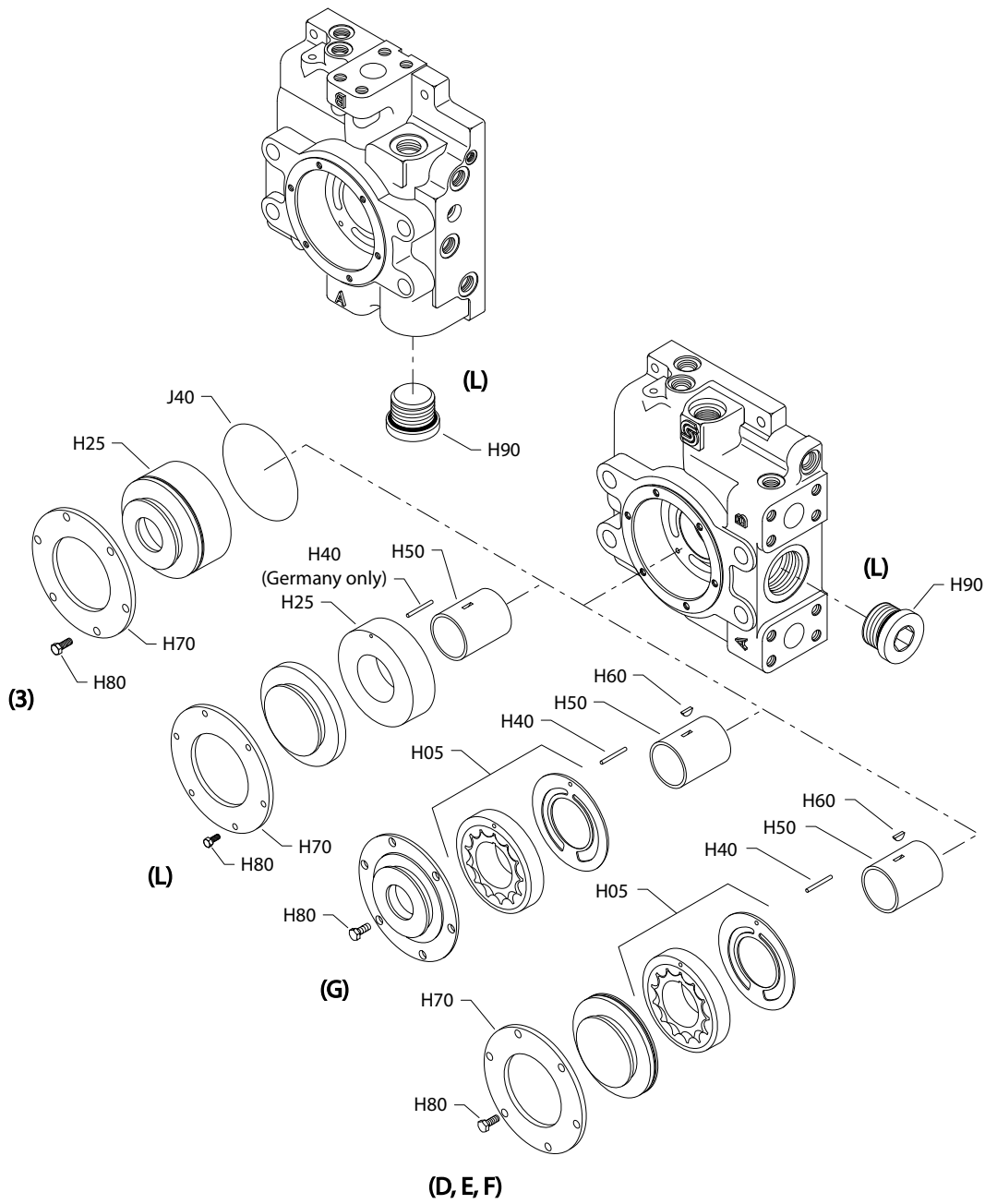
Order code: 8N

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G04	10-40		11093574	End cap assembly, CW	1
G12	10-40		11040532	Plug assembly	1
G22	10-40		140644	Plug assembly	1
G24	10-40		11040532	Plug assembly	1
G25	10-40		11040532	Plug assembly	1
G27	10-40		11040532	Plug assembly	1
G29	10-40		327007 (9005110-4400)	Plug assembly	1
G46	10-40		140644	Plug assembly	1
G47	10-40		140644	Plug assembly	1
G51	10-40		11040532	Plug assembly	1
G53	10-40		11040532	Plug assembly	1
G54	10-40		11040532	Plug assembly	1
G77	10-40		517830	Valve spool	1
G78	10-40		517832	Spring	1
G79	10-40		517827	Valve spool	1
G80	10-40		504681	Screw	1
G81	10-40		504681	Screw	1
G82	10-40		504681	Screw	1
G83	10-40		504681	Screw	1
G90	10-40		713768	Screw	1
G97	10-40		506969	Screw	1

### Charging system

#### S90 100cc pump charging system 3, D-L

Parts configuration



\* Included in base pump seal kit Q210

## Charging system

Order code: 3

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H25	01-29		517683	Spacer	1
H70	01-29		516761	Retaining plate	1
H80	01-29		648451	Screw	6
H90	01-29		676734 (9005110-9500)	Plug assembly	1
J40	01-29		680892	O-ring	1

Order code: D

H05	93-15		8200238	Charge pump set, 17 cc ( <a href="#">SB-1993-001</a> on page 273*)	1
H40	87-02		9004800-1224	Pin	1
H50	93-15		8801178	Charge pump shaft ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-1998-066</a> on page 294)	1
H50	87-02	89-16	8100142	Charge pump shaft ( <a href="#">SB-1989-006</a> on page 266)	1
H60	87-02		9003310-1208	Key	1
H70	87-02		516761	Retaining plate	1
H80	87-02		648451 (9007210-0604)	Screw	6

\* For information regarding replacement parts for units built from 89-17 to 93-14, refer to AN152886483362 in the appendix.

Order code: E

H05	93-15		8200239	Charge pump set, 20 cc ( <a href="#">SB-1993-001</a> on page 273*)	1
H40	87-02		9004800-1224	Pin	1
H50	93-15		8801178	Charge pump shaft ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-1998-066</a> on page 294)	1
H50	87-02	89-16	8100142	Charge pump shaft ( <a href="#">SB-1989-006</a> on page 266)	1
H60	87-02		9003310-1208	Key	1
H70	87-02		516761	Retaining plate	1
H80	87-02		648451 (9007210-0604)	Screw	6

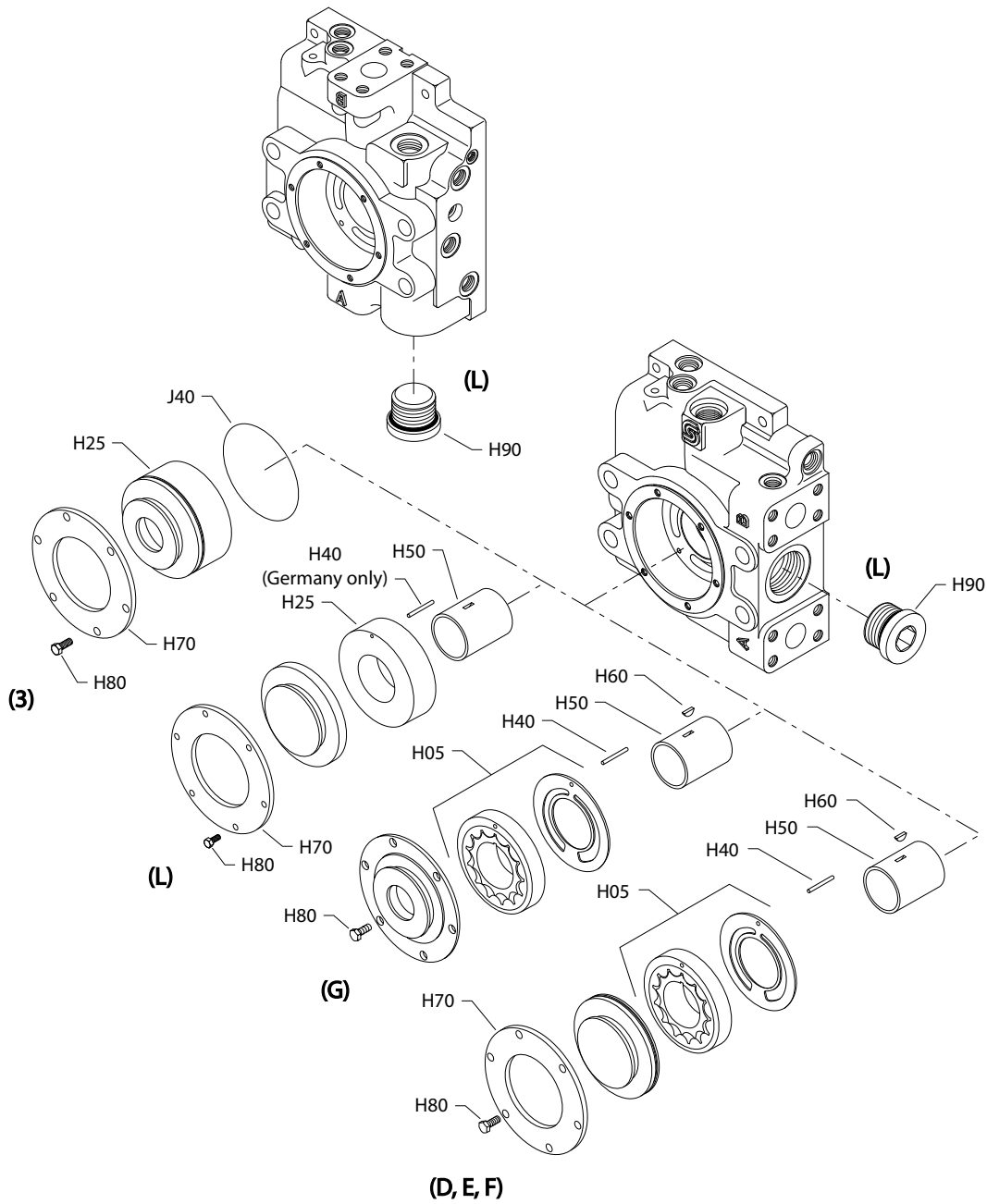
Order code: F

H05	93-15		8200240	Charge pump set, 26 cc ( <a href="#">SB-1993-001</a> on page 273*)	1
H40	87-02		9004800-1224	Pin	1
H50	93-15		8801178	Charge pump shaft ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-1998-066</a> on page 294)	1
H50	87-02	89-16	8100142	Charge pump shaft ( <a href="#">SB-1989-006</a> on page 266)	1
H60	87-02		9003310-1208	Key	1
H70	87-02		516761	Retaining plate	1
H80	87-02		648451 (9007210-0604)	Screw	6

[Part numbers continue to the next 2 pages.](#)

**Charging system**

*Parts configuration*



\* Included in base pump seal kit Q210

## Charging system

Order code: G

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H05	01-20		8200479	Charge pump set	1
H05	94-27	01-19	8200245	Charge pump set, 31 cc ( <a href="#">SB-2001-013</a> on page 307)	1
H40	94-27		5000358	Pin	1
H50	01-20		8801210	Charge pump shaft	1
H50	94-27	01-19	8801179	Charge pump shaft ( <a href="#">SB-1998-066</a> on page 294 & <a href="#">SB-2001-013</a> on page 307)	1
H60	94-27		9003310-1208	Key	1
H80	01-20		041160 (9007314-0605)	Screw	6
H80	94-27	01-19	9007210-0604	Screw ( <a href="#">SB-2001-013</a> on page 307)	6

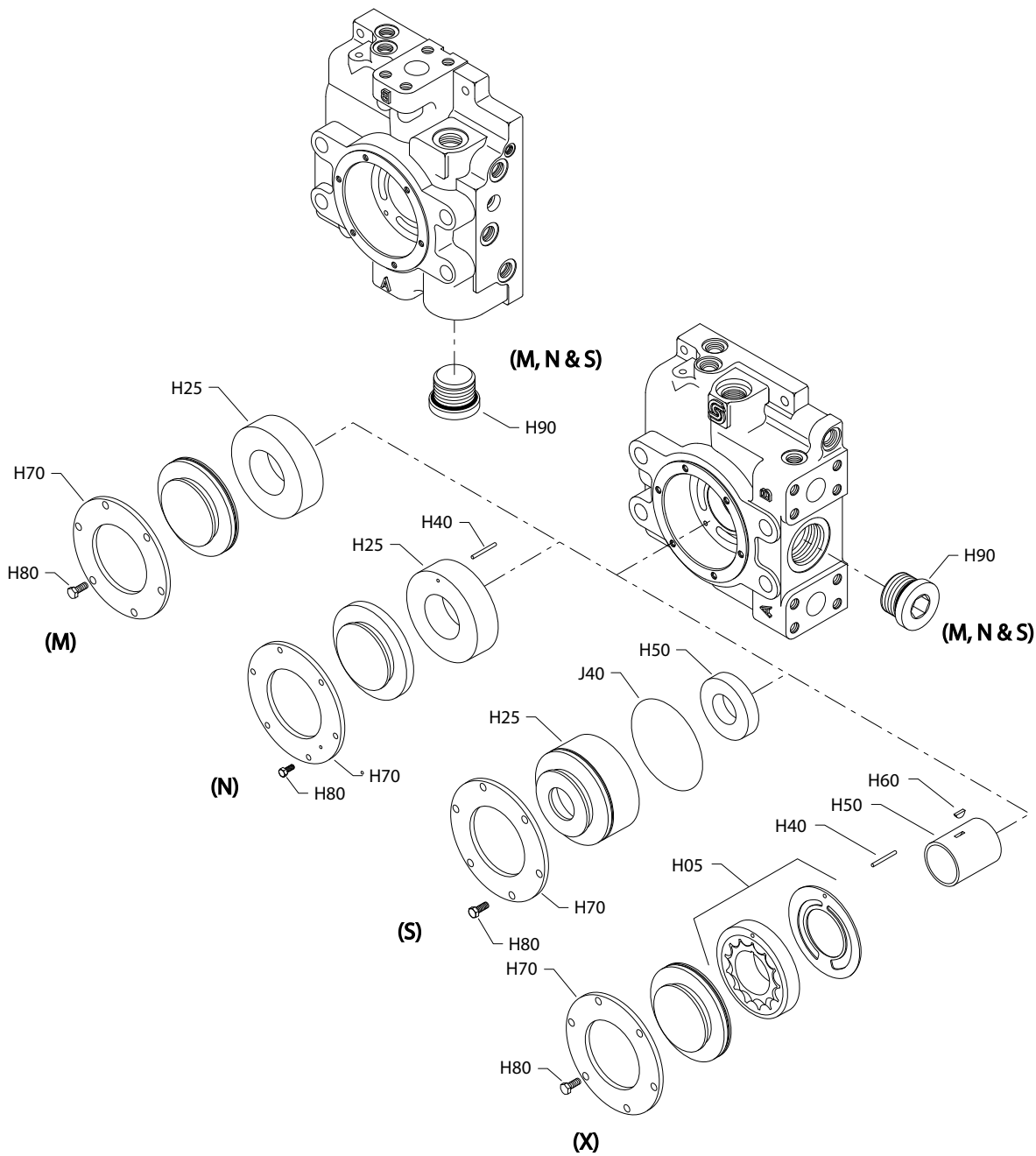
Order code: L

H25	87-02		326538 (8800466-0100)	Charge pump spacer	1
H40	87-02		9004800-1224	Pin (Germany only)	1
H50	93-15		8801178	Charge pump shaft ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-1998-066</a> on page 294)	1
H50	87-02	89-16	8100142	Charge pump shaft ( <a href="#">SB-1989-006</a> on page 266)	1
H70	87-02		516761	Retaining plate	1
H80	87-02		9007210-0604	Screw	6
H90	87-02		676734 (9005110-9500)	Plug assembly	1

**Charging system**

**S90 100cc pump charging system M-X**

*Parts configuration*



\* Included in base pump seal kit Q210

## Charging system

Order code: M

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H25	96-05		8800973	Charge pump spacer	1
H70	96-05		516761	Retaining plate	1
H80	96-05		9007210-0604	Screw	6
H90	96-05		676734 (9005110-9500)	Plug assembly	1

Order code: N

H25	01-29		11077718	Spacer	1
H40	01-29		9004800-1224	Pin	1
H70	01-29		516761	Retaining plate	1
H80	01-29		648451	Screw	6
H90	01-29		676734 (9005110-9500)	Plug assembly	1

Order code: S

H25	96-24		509242	Charge pump spacer	1
H50	96-24		509221	Spacer	1
H70	96-24		516761	Retaining plate	1
H80	96-24		648451	Screw	6
H90	96-24		676734 (9005110-9500)	Plug assembly	1
J40	96-24		680892 (9004104-0440)	O-ring	1

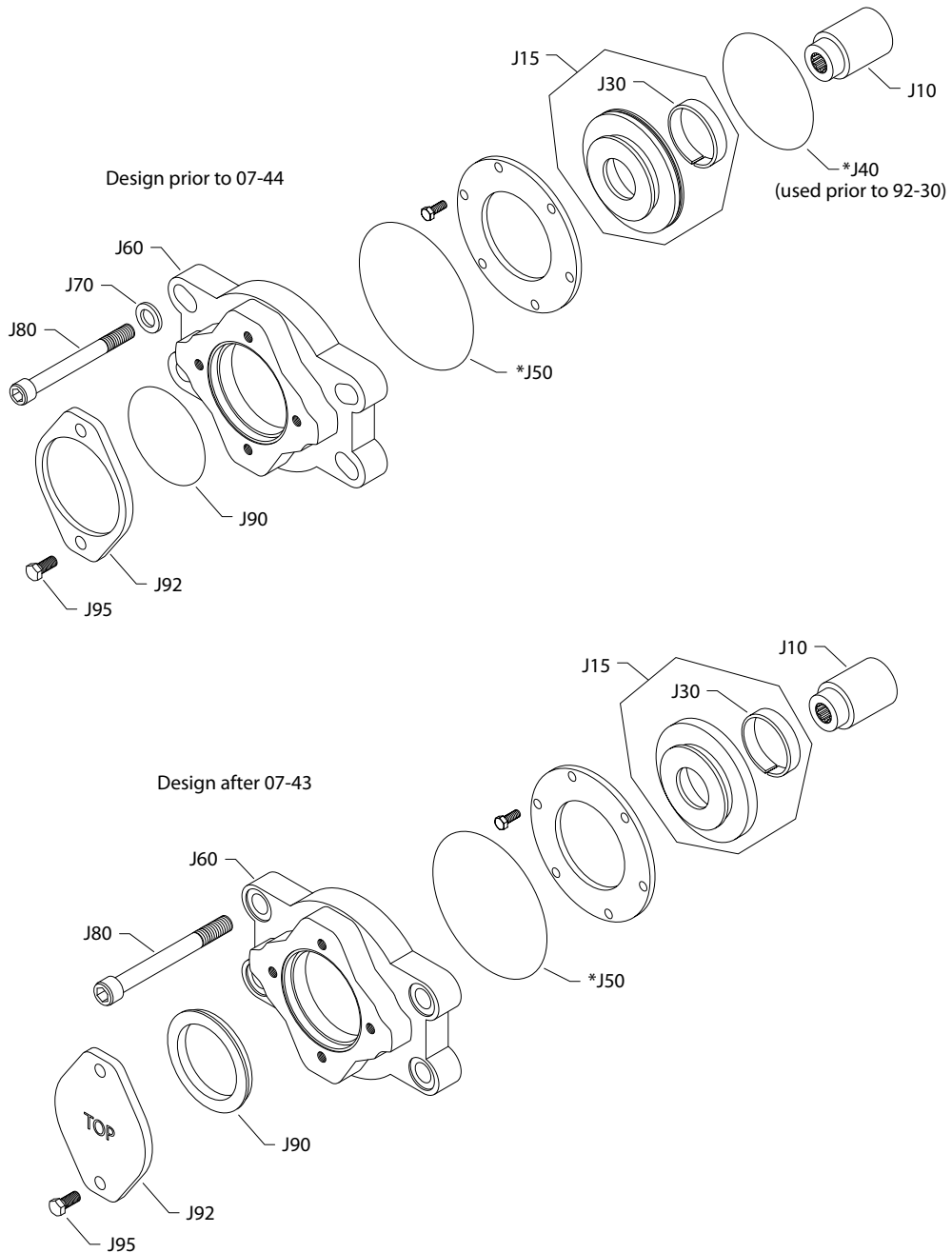
Order code: X

H05	04-42		8200239	Charge pump set, 20 cc	1
H40	04-42		9004800-1224	Pin	1
H50	04-42		8801178	Charge pump shaft	1
H60	04-42		9003310-1208	Key	1
H70	04-42		516761	Retaining plate	1
H80	04-42		648451	Screw	6

**Auxiliary mounting**

**S90 pump aux mounting AB and AC**

*Parts configuration*





## Auxiliary mounting

Order code: AB & A

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	87-02		8100147	Coupling, 9 tooth	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-29	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200467	Flange adapter, SAE A ( <a href="#">SB-2007-027</a> on page 313)	1
J70	87-02	07-43	664920 (9009625-0132)	Washer ( <a href="#">SB-2007-027</a> on page 313)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw, M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	07-44		4800482	A pad seal ( <a href="#">SB-2007-027</a> on page 313)	1
J90	87-02	07-43	545434 (9004100-0420)	O-ring	1
J92	07-44		4460586	Cover plate ( <a href="#">SB-2007-027</a> on page 313)	1
J92	87-02	07-43	9802336	Cover plate	1
J95	87-02		9007200-3714	Screw	3

\* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

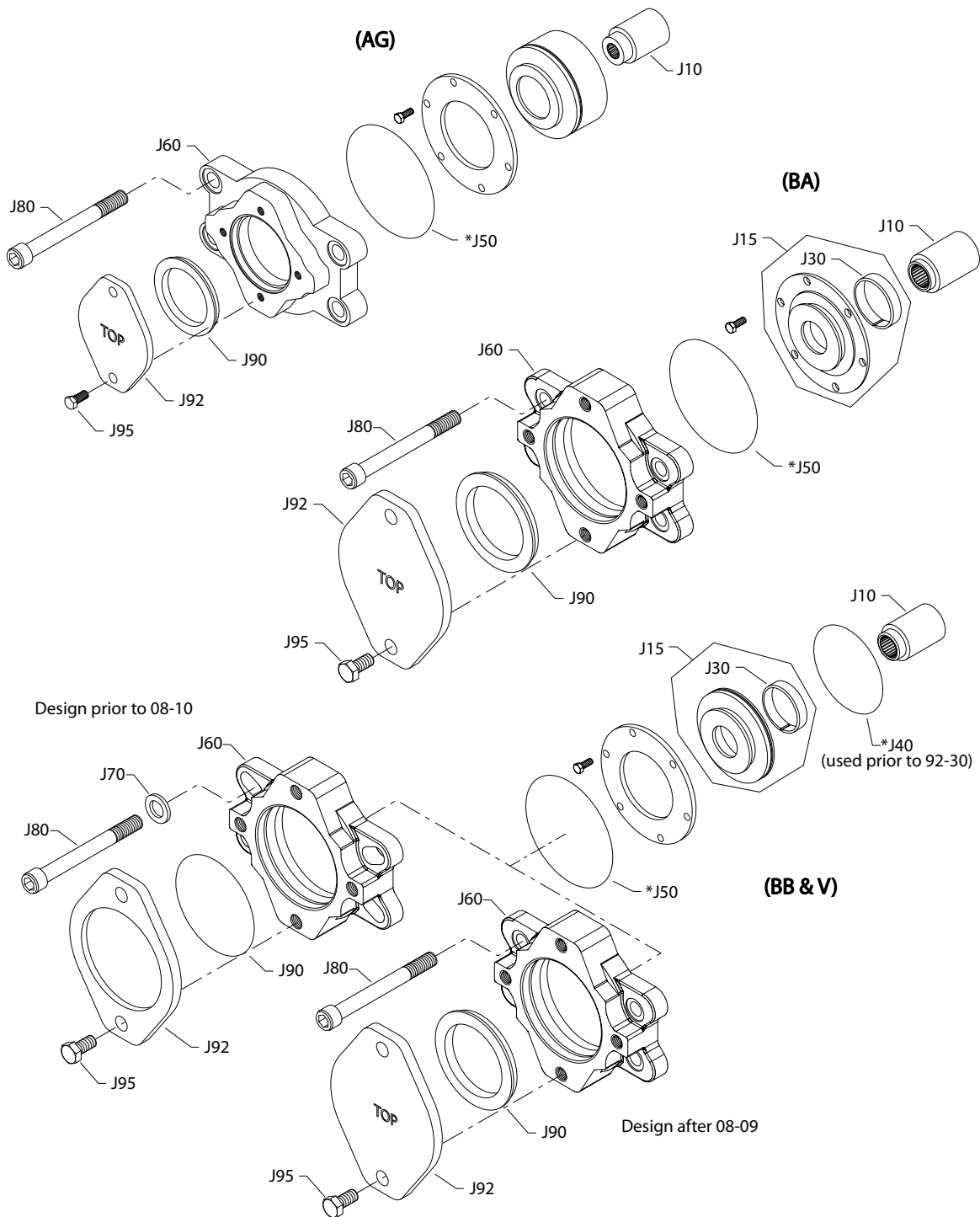
Order code: AC & T

J10	87-02		8100297	Coupling, 11 tooth	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-29	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200467	Flange adapter, SAE A ( <a href="#">SB-2007-027</a> on page 313)	1
J70	87-02	07-43	664920 (9009625-0132)	Washer ( <a href="#">SB-2007-027</a> on page 313)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw M16 x 130	4
J90	07-44		4800482	A pad seal ( <a href="#">SB-2007-027</a> on page 313)	1
J90	87-02	07-43	545434 (9004100-0420)	O-ring	1
J92	07-44		4460586	Cover plate ( <a href="#">SB-2007-027</a> on page 313)	1
J92	87-02	07-43	9802336	Cover plate	1
J95	87-02		9007200-3714	Screw	2

**Auxiliary mounting**

**S90 100cc pump aux mounting AG-BB, V**

*Parts configuration*



## Auxiliary mounting

Order code: AG

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	09-29		8100147	Coupling, 9 tooth	1
J50	09-29		056739 (9004104-1580)	O-ring	1
J60	09-29		8200467	Flange adapter, SAE A	1
J80	09-29		518721	Screw, M16x 140	4
J90	09-29		4800482	A-pad seal	1
J92	09-29		4460586	Cover plate	1
J95	09-29		9007200-3714	Screw	2

Order code: BA

J10	05-14		8100273	Coupling, 15 tooth	1
J15	05-14		8801248	Cover assembly, CW	1
J15	05-14		8801352	Cover assembly, CCW	1
J30	05-14		664771 (8700008)	Bushing	1
J50	05-14		056739 (9004104-1580)	O-ring	1
J60	05-14		8200468	Flange adapter, SAE B	1
J80	05-14		518721	Screw, M16 x 140	4
J90	05-14		8801061	B-pad seal	1
J92	05-14		8801059	Cover plate	1
J95	05-14		9007200-5021	Screw	2

Order code: BB & V

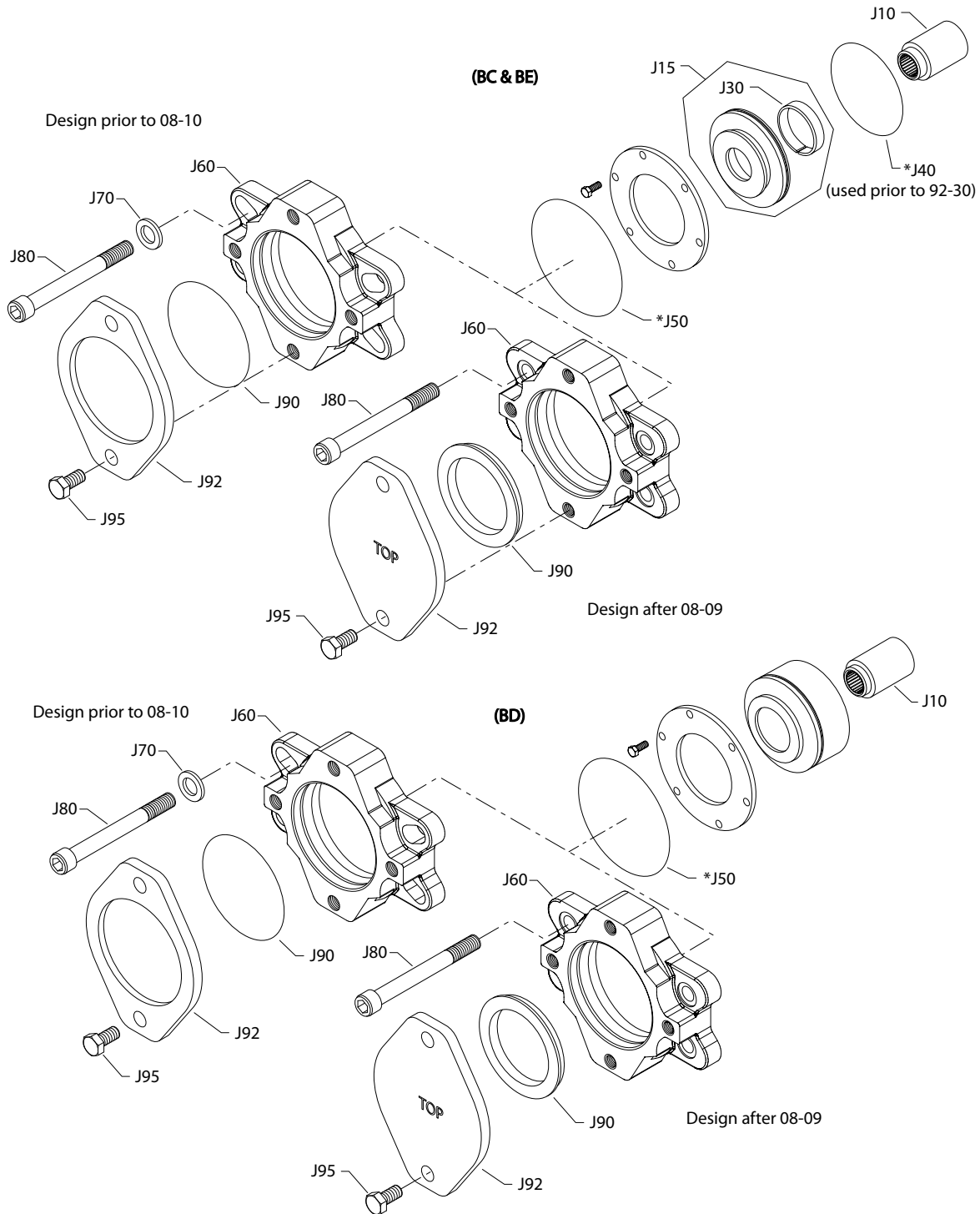
J10	87-02		8100273	Coupling, 15 tooth	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200468	Flange adapter, SAE B ( <a href="#">SB-2007-055</a> on page 317)	1
J70	87-02	08-09	9009625-0132	Washer ( <a href="#">SB-2007-055</a> on page 317)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw M16 x 130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		8801061	B-pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J90	87-02	08-09	726935 (9004104-0450)	O-ring	1
J92	08-10		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J92	87-02	08-09	4460370	Cover plate	1
J95	87-02		9007200-5021	Screw	2

\* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

**Auxiliary mounting**

**S90 100cc pump aux mounting BC, BD, BE**

*Parts configuration*



\* Included in base pump seal kit Q210

## Auxiliary mounting

Order code: BC & B

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	87-02		8100148	Coupling, 13 tooth	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200468	Flange adapter, SAE B ( <a href="#">SB-2007-055</a> on page 317)	1
J70	87-02	08-09	9009625-0132	Washer ( <a href="#">SB-2007-055</a> on page 317)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		8801061	B-pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J90	87-02	08-09	726935 (9004104-0450)	O-ring	1
J92	08-10		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J92	87-02	08-09	4460370	Cover plate	1
J95	87-02		9007200-5021	Screw	2

\* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

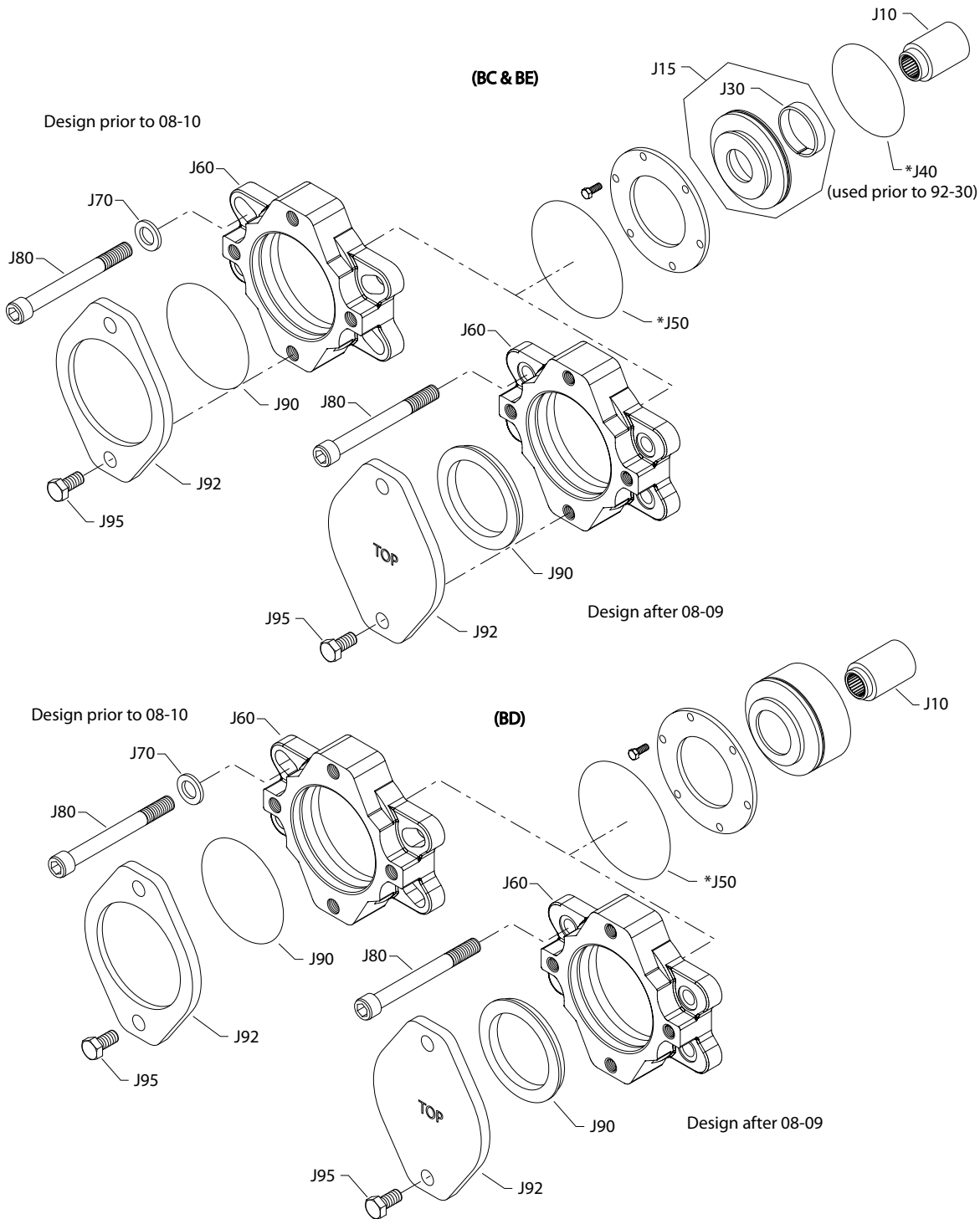
Order code: BD

J10	99-17		8100148	Coupling, 13 tooth	1
J50	99-17		056739 (9004104-1580)	O-ring	1
J60	99-17		8200540	Flange adapter, SAE B ( <a href="#">SB-2007-055</a> on page 317)	1
J70	99-17	08-09	664920 (9009625-0132)	Washer ( <a href="#">SB-2007-055</a> on page 317)	4
J80	99-17		518721	Screw, M16 x 140	4
J90	08-10		8801061	B pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J90	99-17	08-09	726935 (9004104-0450)	O-ring	1
J92	08-10		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J92	99-17	08-09	4460370	Cover plate	1
J95	99-17		370320	Screw	2

[Parts continue to the next 2 pages.](#)

**Auxiliary mounting**

*Parts configuration*



\* Included in base pump seal kit Q210

## Auxiliary mounting

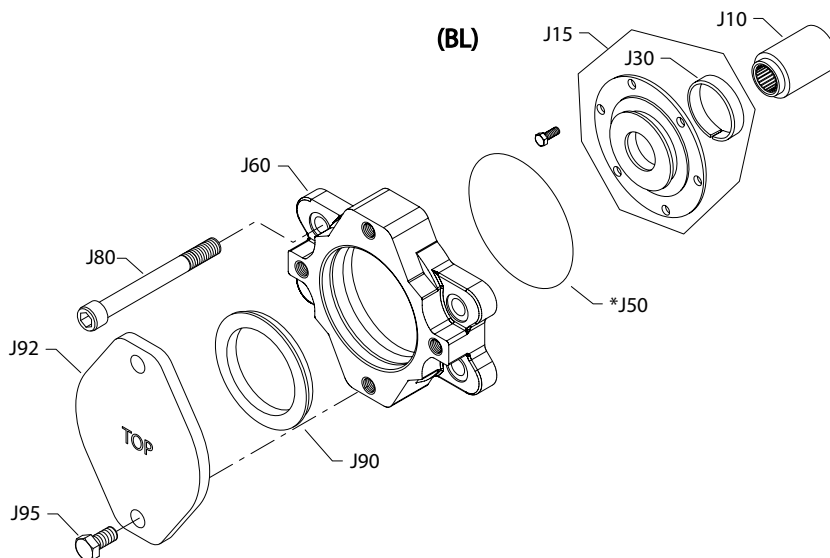
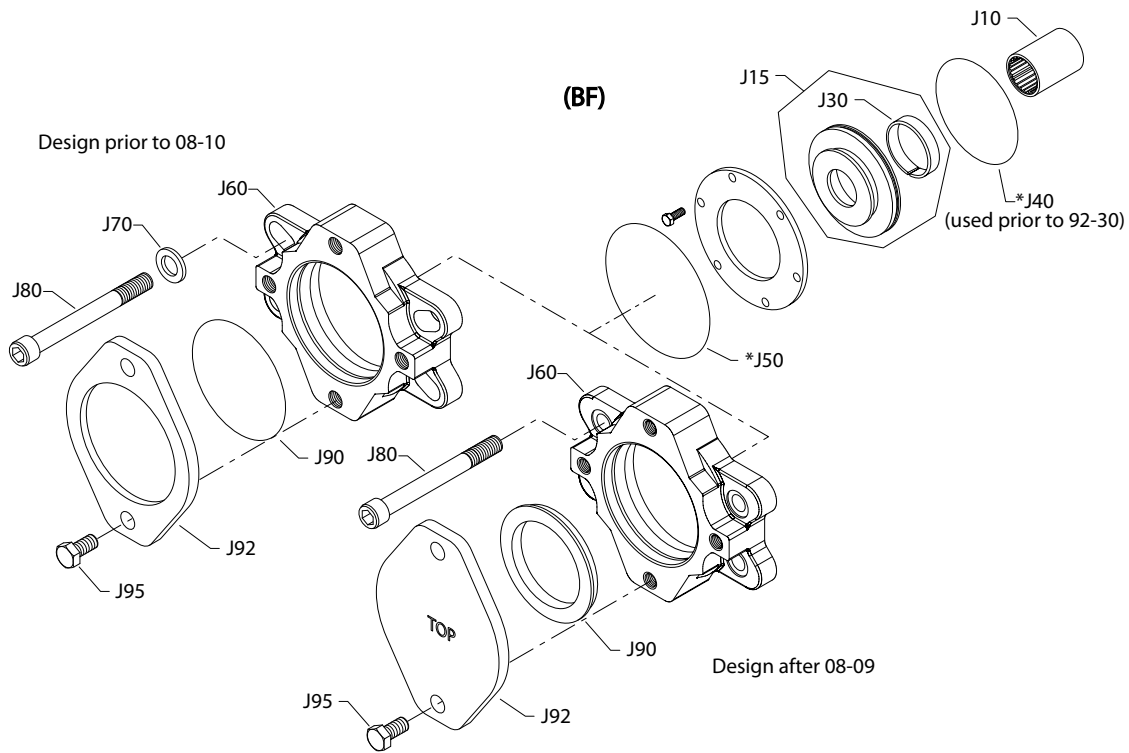
Order code: BE & P

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	87-02		8100148	Coupling, 13 tooth	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200540	Flange adapter, SAE B ( <a href="#">SB-2007-055</a> on page 317)	1
J70	87-02	08-09	9009625-0132	Washer ( <a href="#">SB-2007-055</a> on page 317)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw M16 x 130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		8801061	B-pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J90	87-02	08-09	726935 (9004104-0450)	O-ring	1
J92	08-10		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J92	87-02	08-09	4460370	Cover plate	1
J95	87-02		370320 (9007314-1207)	Screw	2

**Auxiliary mounting**

**S90 100cc pump aux mounting BF, BL**

*Parts configuration*



\* Included in base pump seal kit Q210



## Auxiliary mounting

Order code: BF & BL

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	87-02		11053342	Coupling, 19 tooth	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200468	Flange adapter, SAE B ( <a href="#">SB-2007-055</a> on page 317)	1
J70	87-02	08-09	9009625-0132	Washer ( <a href="#">SB-2007-055</a> on page 317)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		8801061	B-pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J90	87-02	08-09	726935 (9004104-0450)	O-ring	1
J92	08-10		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J92	87-02	08-09	4460370	Cover plate	1
J95	87-02		9007200-5021	Screw	2

\* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

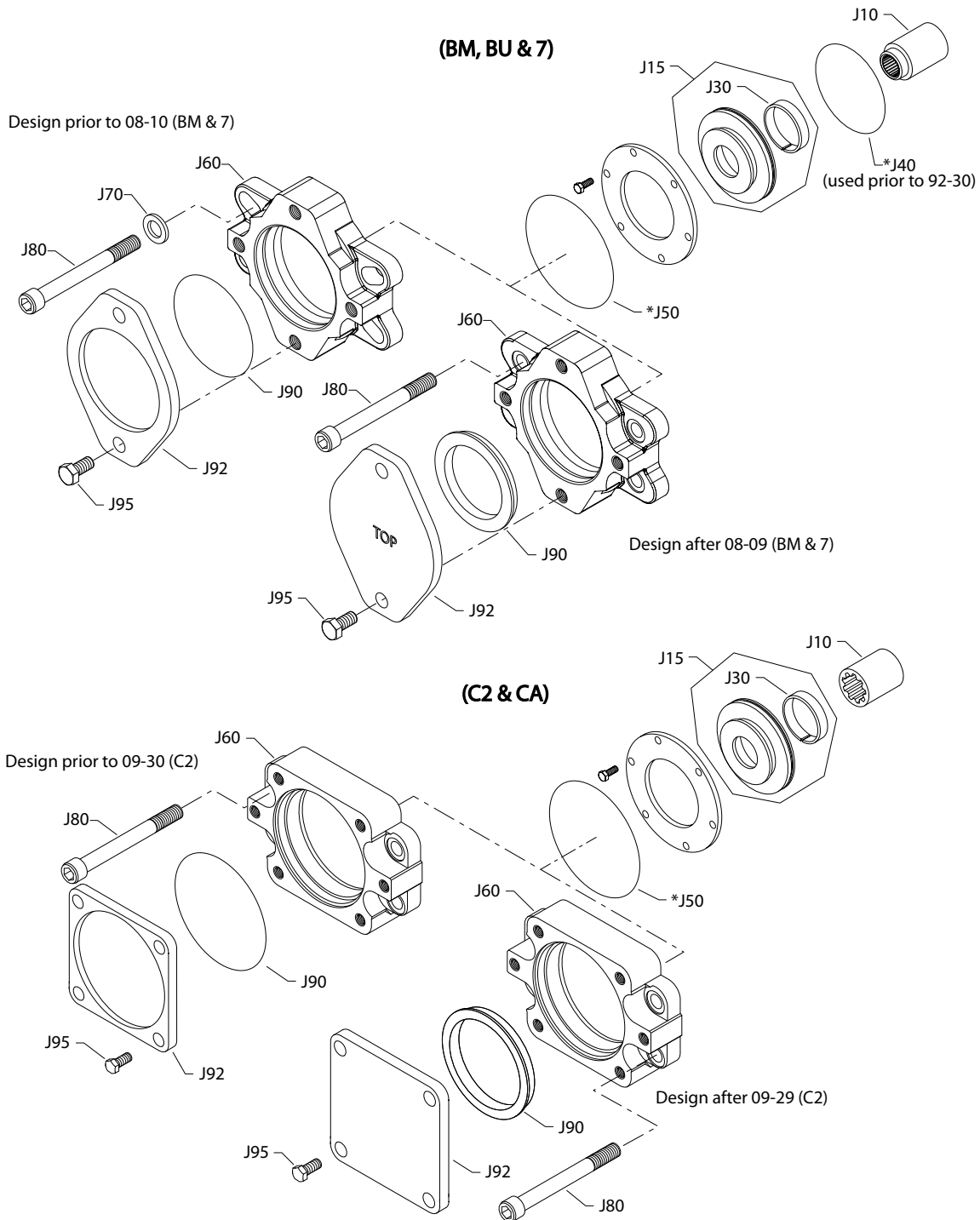
Order code: BL

J10	06-01		8100148	Coupling, 13 tooth	1
J15	06-01		8801248	Cover assembly, CW	1
J15	06-01		8801352	Cover assembly, CCW	1
J30	06-01		664771 (8700008)	Bushing	1
J50	06-01		056739 (9004104-1580)	O-ring	1
J60	06-01		8200468	Flange adapter, SAE B ( <a href="#">SB-2007-055</a> on page 317)	1
J80	06-01		518721	Screw, M16 x 140	4
J90	06-01		8801061	B pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J92	06-01		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J95	06-01		9007200-5021	Screw	2

**Auxiliary mounting**

**S90 100cc pump aux mounting BM, BU, C2, CA**

*Parts configuration*



\* Included in base pump seal kit Q210

## Auxiliary mounting

Order code: BM & 7

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	94-16		8100273	Coupling, 15 tooth	1
J15	94-16		8800832	Cover assembly, CW ( <a href="#">SB-2005-011</a> on page 310)	1
J15	94-16		8800833	Cover assembly, CCW ( <a href="#">SB-2005-011</a> on page 310)	1
J30	94-16		664771 (8700008)	Bushing	1
J50	94-16		056739 (9004104-1580)	O-ring	1
J60	94-16		8200540	Flange adapter, SAE B, metric threads ( <a href="#">SB-2007-055</a> on page 317)	1
J70	94-16	08-09	9009625-0132	Washer ( <a href="#">SB-2007-055</a> on page 317)	4
J80	98-44		518721	Screw, M16x 140	4
J80	94-16	98-43	9007314-1624	Screw M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		8801061	B-pad seal ( <a href="#">SB-2007-055</a> on page 317)	1
J90	06-13	08-09	726935 (9004104-0450)	O-ring	1
J92	08-10		8801059	Cover plate ( <a href="#">SB-2007-055</a> on page 317)	1
J92	94-16	08-09	4460370	Cover plate	1
J95	94-16		737866 (9007314-1207)	Screw	2

Order code: BU

J10	07-10		8100297	Coupling, 15 tooth	1
J15	07-10		8800833	Cover assembly, CCW	1
J30	07-10		664771 (8700008)	Bushing	1
J50	07-10		056739 (9004104-1580)	O-ring	1
J60	07-10		8200540	Flange adapter, SAE B	1
J80	07-10		518721	Screw, M16x 140	4
J90	07-10		8801061	B-pad seal	1
J92	07-10		8801059	Cover plate	1
J95	07-10		9007314-1207	Screw	2

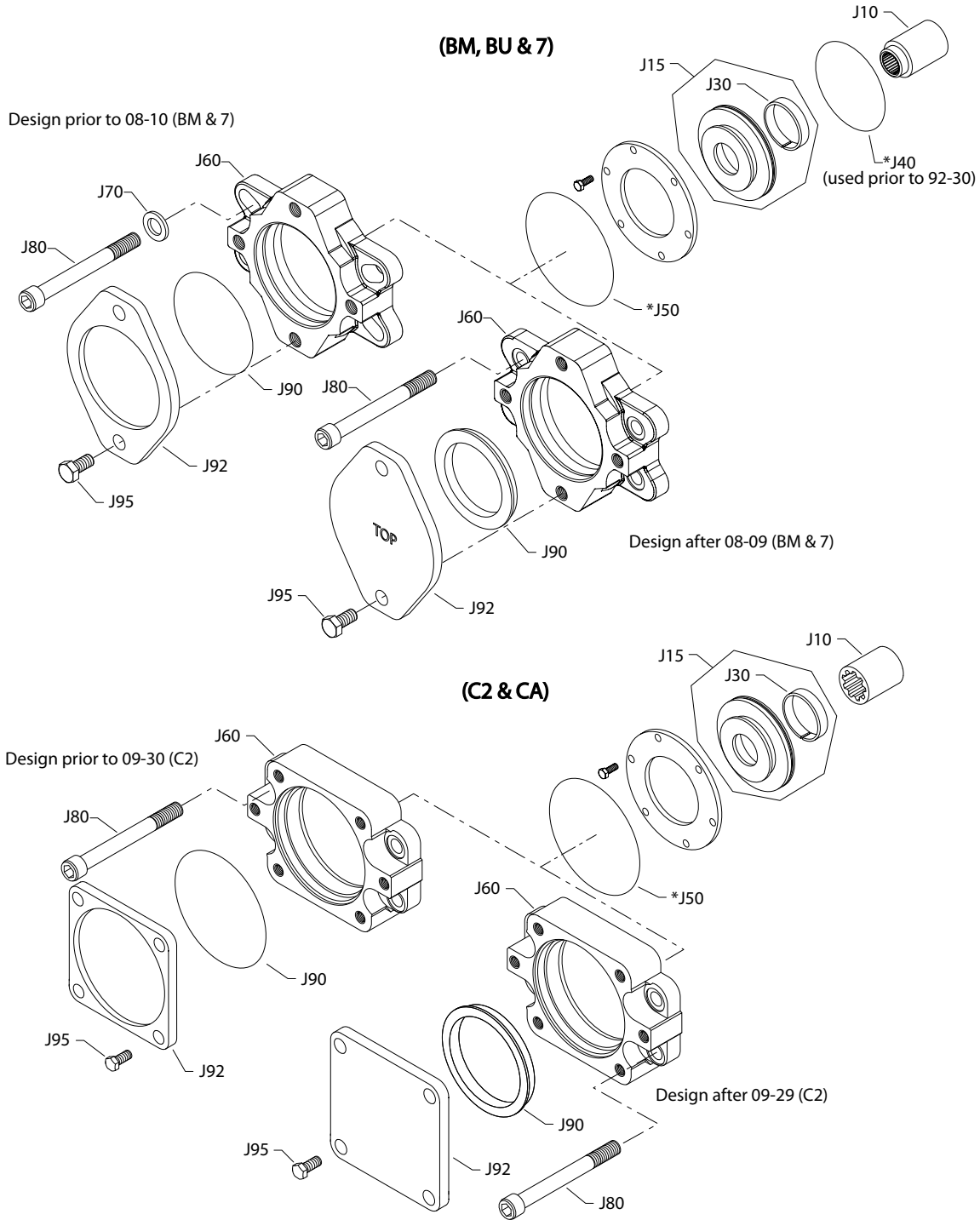
Order code: C2

J10	06-43		11017038	Coupling, 25 tooth, high strength	1
J15	06-43		8800832	Cover assembly, CW	1
J30	06-43		664771 (8700008)	Bushing	1
J50	06-43		056739 (9004104-1580)	O-ring	1
J60	06-43		8200515	Flange adapter, SAE C ( <a href="#">SB-2007-051</a> on page 315)	1
J80	06-43		518721	Screw, M16x 140	4
J90	09-30		11081805	C-pad seal ( <a href="#">SB-2007-051</a> on page 315)	1
J90	06-43	09-29	726943 (9004104-0490)	O-ring	1
J92	09-30		8801060	Cover plate ( <a href="#">SB-2007-051</a> on page 315)	1
J92	06-43	09-29	8800406	Cover plate	1
J95	06-43		9007200-5021	Screw	4

[Parts continue to the next 2 pages.](#)

**Auxiliary mounting**

*Parts configuration*



\* Included in base pump seal kit Q210

### Auxiliary mounting

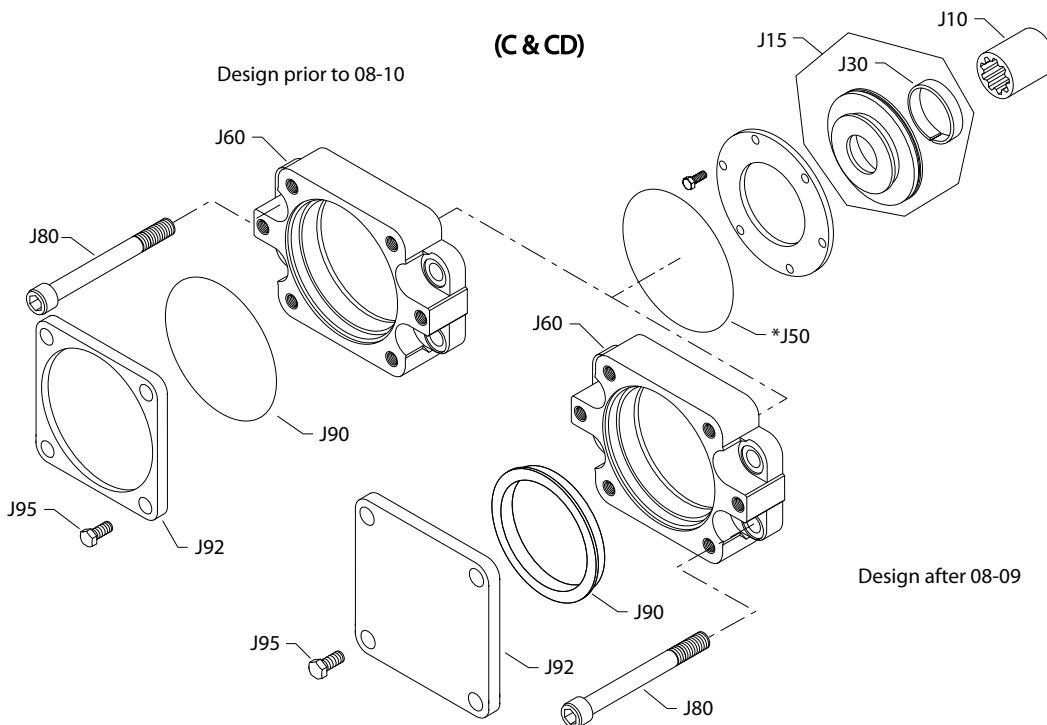
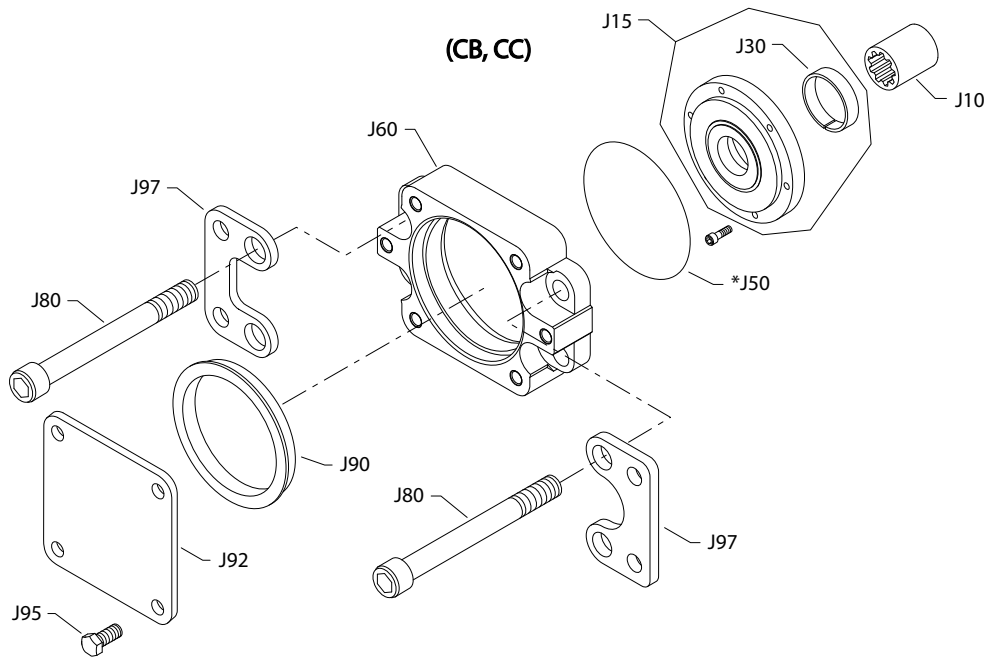
Order code: CA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	06-01		11053346	Coupling, 14 tooth,high strength	1
J15	06-01		8800832	Cover assembly,CW ( <a href="#">SB-2005-011</a> on page 310)	1
J30	06-01		664771 (8700008)	Bushing	1
J50	06-01		056739 (9004104-1580)	O-ring	1
J60	06-01		8200515	Flange adapter, SAE C	1
J80	06-01		518721	Screw, M16x 140	4
J90	06-01		11081805	C-pad seal	1
J92	06-01		8801060	Cover plate	1
J95	06-01		9007200-5021	Screw	4

**Auxiliary mounting**

**S90 100cc pump aux mounting CB, CC, CD**

*Parts configuration*



\* Included in base pump seal kit Q210

## Auxiliary mounting

Order code: CB

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	03-35		11053346	Coupling, 14 tooth, high strength	1
J15	03-35		8801248	Cover assembly, CW ( <a href="#">SB-2005-011</a> on page 310)	1
J30	03-35		664771 (8700008)	Bushing	1
J50	03-35		056739 (9004104-1580)	O-ring	1
J60	03-35		8200550	Flange adapter, SAE C	1
J80	03-35		518721	Screw, M16x 140	4
J90	03-35		11081805	C-pad seal	1
J92	03-35		8801060	Cover plate	1
J95	03-35		9007200-5021	Screw	4
J97	03-35		8200549	Mounting bracket	1

Order code: CC

J10	13-07		11053346	Coupling, 14 tooth, high strength	1
J15	13-07		8800832	Cover assembly, CW	1
J30	13-07		664771 (8700008)	Bushing	1
J50	13-07		056739 (9004104-1580)	O-ring	1
J60	13-07		8200550	Flange adapter, SAE C	1
J80	13-07		518721	Screw, M16x 140	4
J90	13-07		11081805	C-pad seal	1
J92	13-07		8801060	Cover plate	1
J95	13-07		9007200-5021	Screw	4
J97	13-07		8200549	Mounting bracket	1

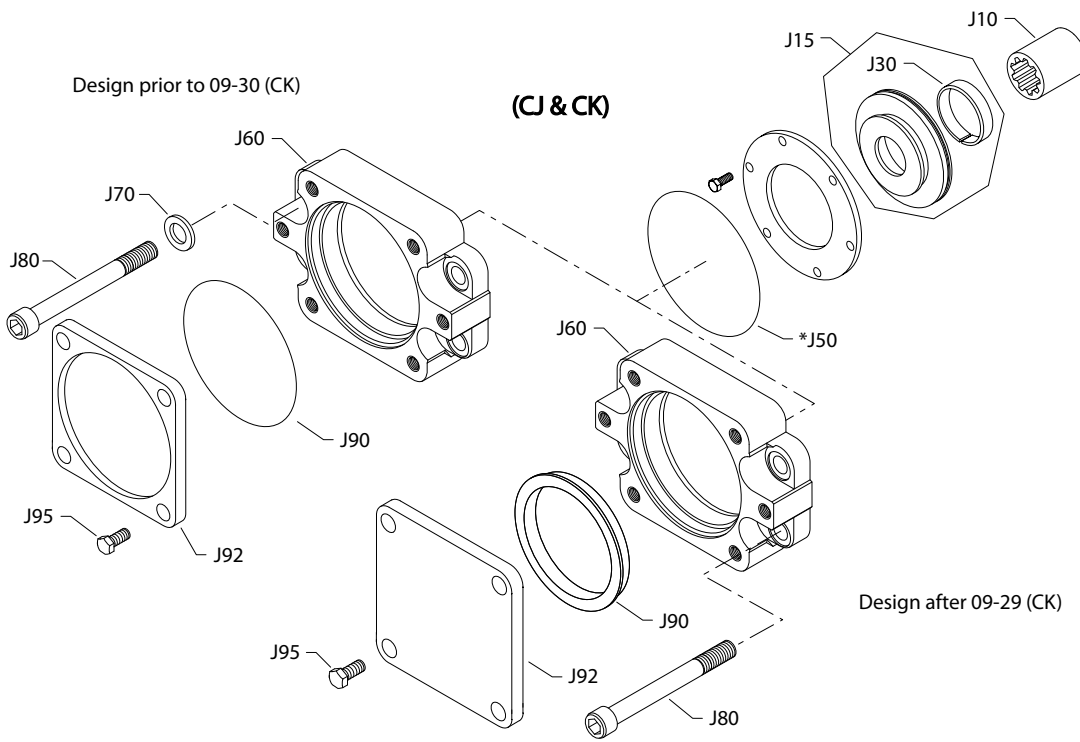
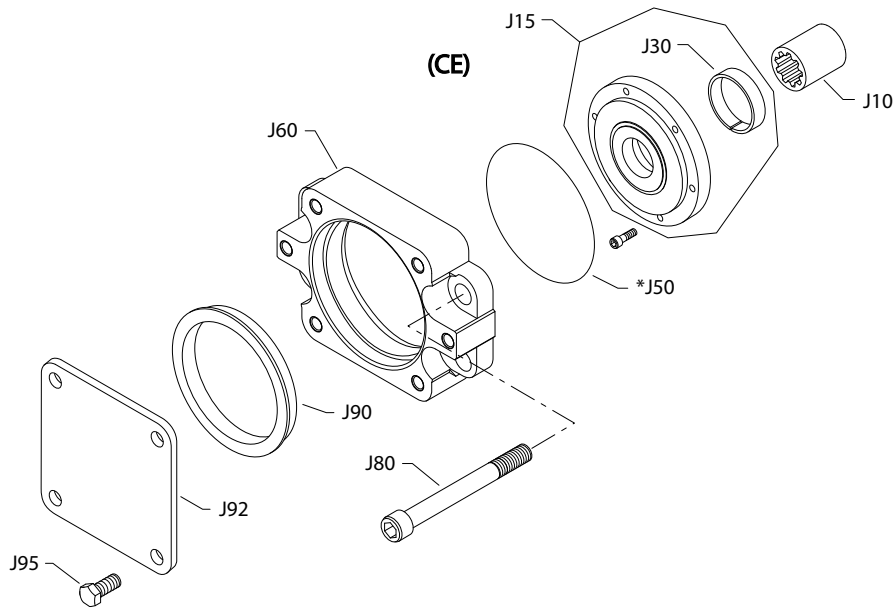
Order code: C & CD

J10	87-02		11053346	Coupling, 14 tooth, high strength	1
J15	87-02		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-2005-011</a> on page 310)	1
J15	87-02		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-2005-011</a> on page 310)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
J60	87-02		8200515	Flange adapter, SAE C ( <a href="#">SB-2007-051</a> on page 315)	1
J70	87-02	03-10	5000602	Washer ( <a href="#">SB-2002-050</a> on page 309)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	87-02	98-43	9007314-1624	Screw M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		11081805	C-pad seal ( <a href="#">SB-2007-051</a> on page 315)	1
J90	87-02	08-09	726943 (9004104-0490)	O-ring	1
J92	08-10		8801060	Cover plate ( <a href="#">SB-2007-051</a> on page 315)	1
J92	87-02	08-09	8800406	Cover plate	1
J95	87-02		9007200-5021	Screw	4

**Auxiliary mounting**

**S90 100cc pump aux mounting CE, CJ, CK**

*Parts configuration*



\* Included in base pump seal kit Q210



## Auxiliary mounting

Order code: CE

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	02-08		11053346	Coupling, 14 tooth, high strength	1
J15	02-08		8801248	Cover assembly, CW ( <a href="#">SB-2005-011</a> on page 310)	1
J30	02-08		664771 (8700008)	Bushing	1
J50	02-08		056739 (9004104-1580)	O-ring	1
J60	02-08		8200515	Flange adapter, SAE C	1
J80	02-08		518721	Screw, M16x 140	4
J90	02-08		11081805	C-pad seal	1
J92	02-08		8801060	Cover plate	1
J95	02-08		9007200-5021	Screw	4

Order code: CJ

J10	02-08		11053346	Coupling, 14 tooth, high strength	1
J15	02-08		8800832	Cover assembly, CW	1
J30	02-08		664771 (8700008)	Bushing	1
J50	02-08		056739 (9004104-1580)	O-ring	1
J60	02-08		8200516	Flange adapter, SAE C	1
J80	02-08		518721	Screw, M16x 140	4
J90	02-08		11081805	C-pad seal	1
J92	02-08		8801060	Cover plate	1
J95	02-08		9007200-5021	Screw	4

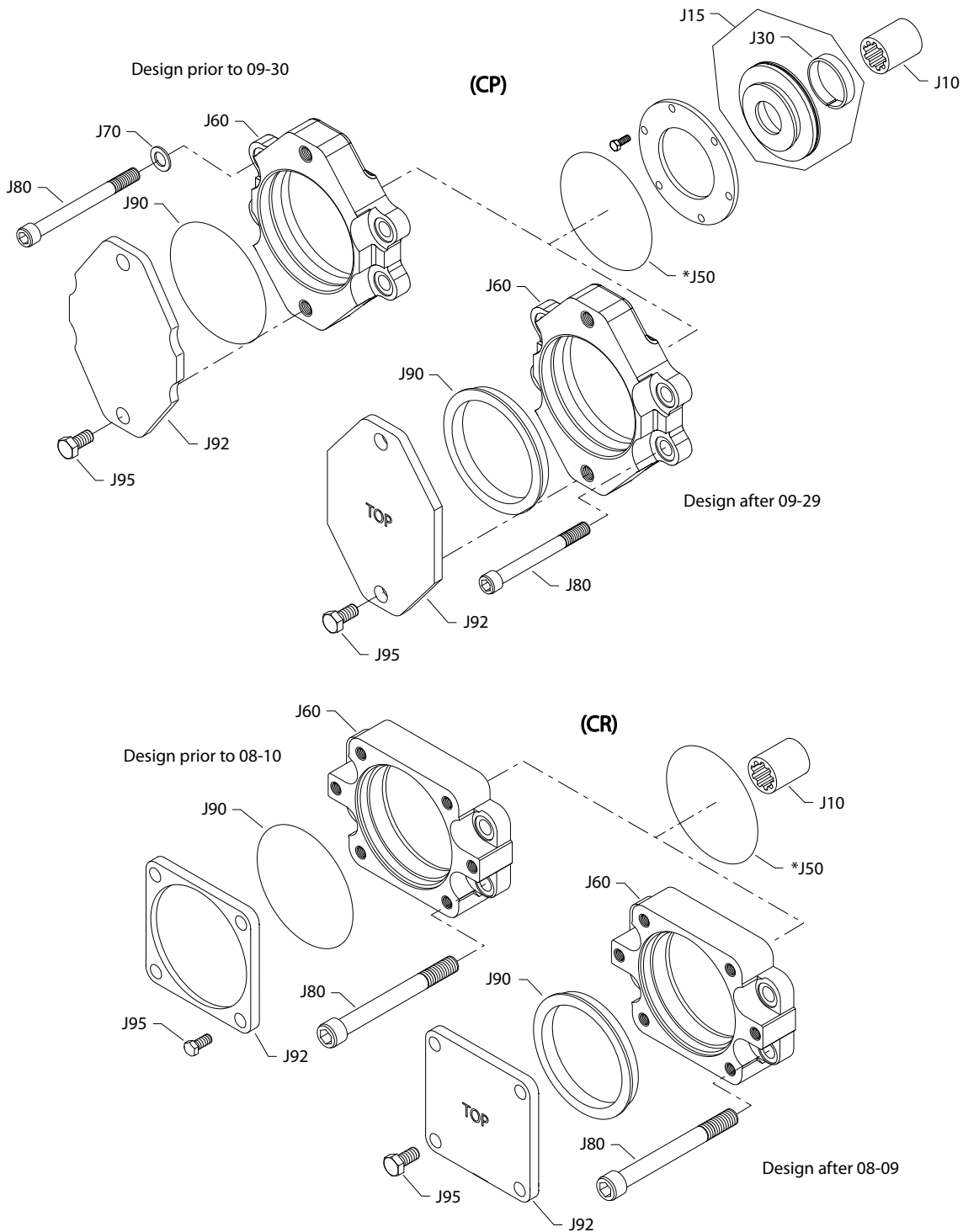
Order code: CK

J10	94-18		11053278	Coupling, 25 tooth, high strength	1
J15	94-18		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-2005-011</a> on page 310)	1
J15	94-18		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273 & <a href="#">SB-2005-011</a> on page 310)	1
J30	94-18		664771 (8700008)	Bushing	1
J50	94-18		056739 (9004104-1580)	O-ring	1
J60	94-18		8200515	Flange adapter, SAE C ( <a href="#">SB-2007-051</a> on page 315)	1
J70	94-18	09-29	5000602	Washer ( <a href="#">SB-2002-050</a> on page 309)	4
J80	98-44		518721	Screw, M16x 140	4
J80	94-18	98-43	9007314-1624	Screw M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	09-30		11081805	C-pad seal ( <a href="#">SB-2007-051</a> on page 315)	1
J90	94-18	09-29	726943 (9004104-0490)	O-ring	1
J92	09-30		8801060	Cover plate ( <a href="#">SB-2007-051</a> on page 315)	1
J92	94-18	09-29	8800406	Cover plate	1
J95	94-18		9007200-5021	Screw	4

**Auxiliary mounting**

**S90P aux mounting CP, CR**

*Parts configuration*



\* Included in base pump seal kit Q210

## Auxiliary mounting

Order code: CP

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	94-18		11053346	Coupling, 14 tooth, high strength	1
J15	94-18		8800832	Cover assembly, CW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J15	94-18		8800833	Cover assembly, CCW ( <a href="#">SB-1993-001</a> on page 273* & <a href="#">SB-2005-011</a> on page 310)	1
J30	94-18		664771 (8700008)	Bushing	1
J50	94-18		056739 (9004104-1580)	O-ring	1
J60	94-18		8200551	Flange adapter, SAE C ( <a href="#">SB-2007-051</a> on page 315)	1
J70	94-18	09-29	664920	Washer	4
J80	98-44		518721	Screw, M16x 140	4
J80	94-18	98-43	9007314-1624	Screw M16 x130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	09-30		11081805	C-pad seal ( <a href="#">SB-2007-051</a> on page 315)	1
J90	94-18	09-29	726943 (9004104-0490)	O-ring	1
J92	09-30		11048554	Cover plate ( <a href="#">SB-2007-051</a> on page 315)	1
J92	94-18	09-29	8800406	Cover plate	1
J95	94-18		9007200-6222	Screw	2

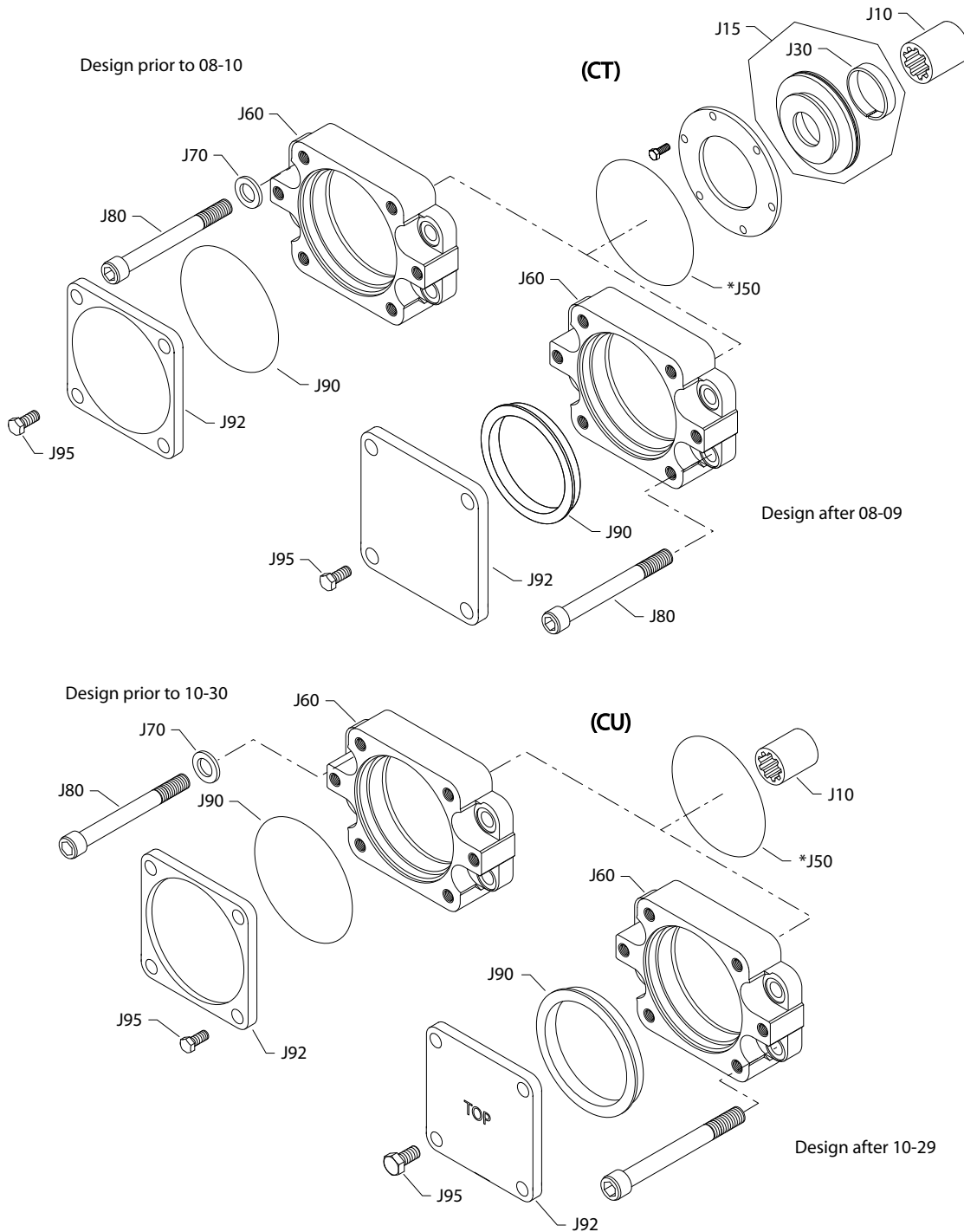
Order code: CR

J10	03-14		11053346	Coupling, 14 tooth, high strength	1
J50	03-14		056739 (9004104-1580)	O-ring	1
J60	03-14		8200538	Flange adapter, SAE C ( <a href="#">SB-2007-051</a> on page 315)	1
J80	03-14		518721	Screw, M16x 140	4
J90	08-10		11081805	C-pad seal ( <a href="#">SB-2007-051</a> on page 315)	1
J90	03-14	08-09	726943 (9004104-0490)	O-ring	1
J92	08-10		8801060	Cover plate ( <a href="#">SB-2007-051</a> on page 315)	1
J92	03-14	08-09	8800406	Cover plate	1
J95	03-14		370320	Screw	4

**Auxiliary mounting**

**S90 100cc pump aux mounting CT, CU**

Parts configuration



\* Included in base pump seal kit Q210

## Auxiliary mounting

Order code: CT

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J10	98-42		11053342	Coupling, 19 tooth	1
J15	98-42		8800832	Cover assembly, CW ( <a href="#">SB-2005-011</a> on page 310)	1
J15	98-42		8800833	Cover assembly, CCW ( <a href="#">SB-2005-011</a> on page 310)	1
J30	98-42		664771 (8700008)	Bushing	1
J50	98-42		056739 (9004104-1580)	O-ring	1
J60	98-42		8200515	Flange adapter, SAE C ( <a href="#">SB-2002-050</a> on page 309 & <a href="#">SB-2007-051</a> on page 315)	1
J70	98-42	03-10	5000602	Washer ( <a href="#">SB-2002-050</a> on page 309)	4
J80	98-44		518721	Screw, M16 x 140	4
J80	98-42	98-43	9007314-1622	Screw M16 x 130 ( <a href="#">SB-1989-023</a> on page 268)	4
J90	08-10		11081805	C-pad seal	1
J90	98-42	08-09	719179 (9004100-0480)	O-ring	1
J92	08-10		8801060	Cover plate	1
J92	98-42	08-09	8800406	Cover plate	1
J95	98-42		9007200-5021	Screw	4

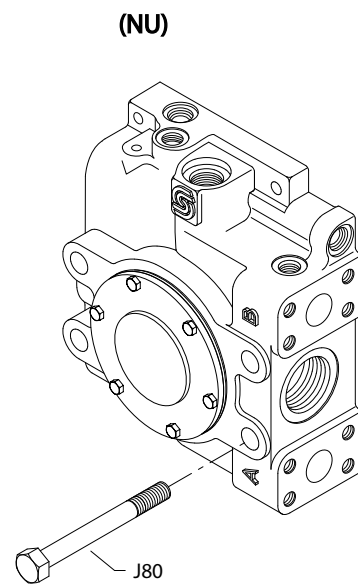
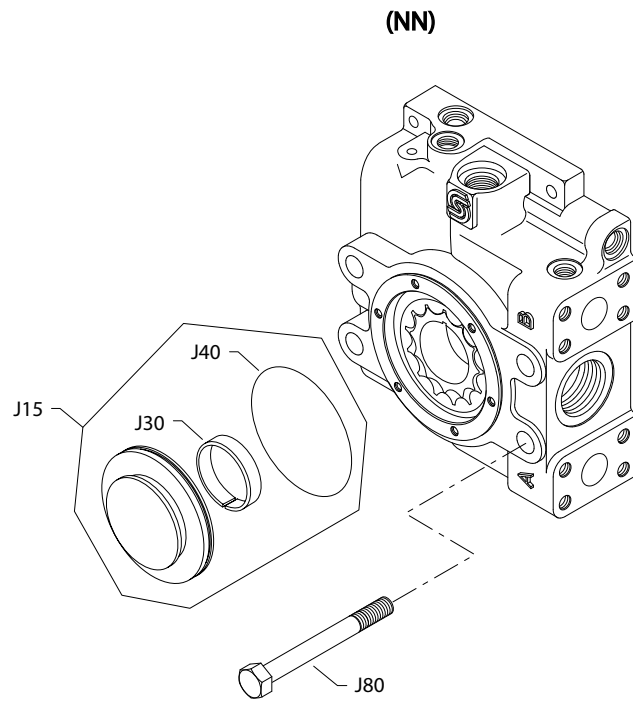
Order code: CU

J10	99-04		11053346	Coupling, 14 tooth, high strength	1
J50	99-04		056739 (9004104-1580)	O-ring	1
J60	99-04		8200515	Flange adapter, SAE C ( <a href="#">SB-2007-051</a> on page 315)	1
J70	99-04	04-02	5000602	Washer ( <a href="#">SB-2002-050</a> on page 309)	4
J80	99-04		518721	Screw, M16 x 140	4
J90	10-30		11081805	C-pad seal ( <a href="#">SB-2007-051</a> on page 315)	1
J90	99-04	10-29	726943 (9004104-0490)	O-ring	1
J92	10-30		8801060	Cover plate ( <a href="#">SB-2007-051</a> on page 315)	1
J92	99-04	10-29	8800406	Cover plate	1
J95	99-04		9007200-5021	Screw	4

### Auxiliary mounting

#### S90 100cc pump aux mounting NN, NU

Parts configuration



\* Included in overhaul seal kit Q210

### Auxiliary mounting

Order code: NN & N

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J15	87-02		8800834	Cover assembly, (SB-1993-001 on page 273*)	1
J30	87-02		664771 (8700008)	Bushing	1
J40	87-02		680892 (9004104-0440)	O-ring	1
J80	98-44		9007210-1621	Screw, M16 x 120	4
J80	87-02	98-43	9007210-1620	Screw, M16 x 100	4

\* For additional information regarding replacement parts for units built prior to 93-10, refer to AN152886483362 in the appendix

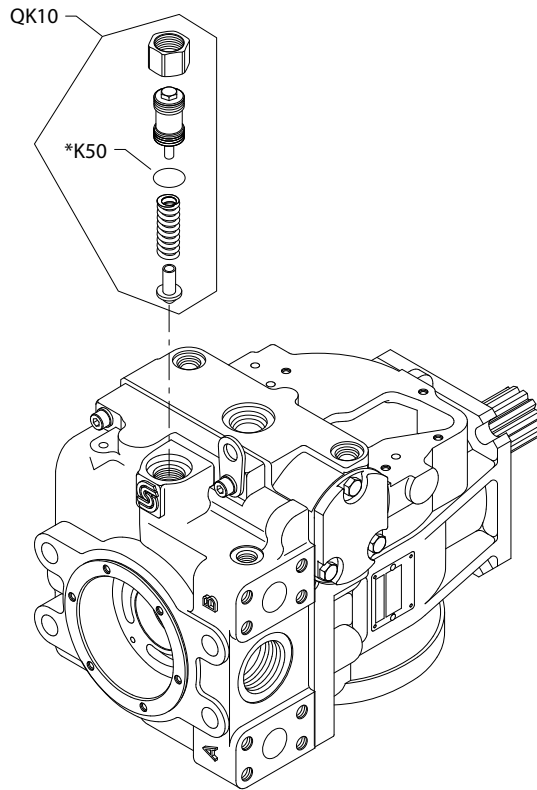
Order code: NU

J80	98-47		9007210-1621	Screw, M16 x 120	4
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### Charge pressure setting

#### S90 100cc pump charge pressure system 08-42, XX

Parts configuration



\* Included in base pump seal kit Q210



### Charge pressure setting

Order code: 08-30

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K50	87-42		001149 (9004201-6200)	O-ring ( <a href="#">SB-1989-002</a> on page 263)	1
QK10	87-42		8002K000-A	Charge relief valve kit, 8-30 bar ( <a href="#">SB-1989-002</a> on page 263)	1

Order code: 32-42

K50	94-13		001149 (9004201-6200)	O-ring	1
QK10	94-13		8510269	Charge relief valve kit, 30-42 bar	1

Order code: JD

No parts					
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Order code: XX

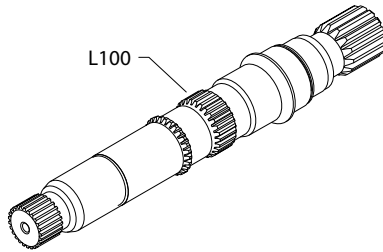
K50	94-13		012559 (9004202-6200)	O-ring, viton	1
QK10	94-13		11086335	Charge relief valve kit, viton	1

**Shaft**

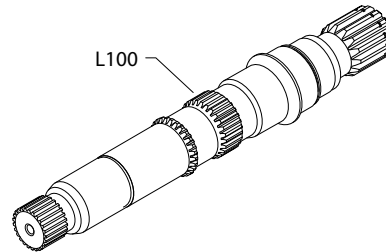
**S90 100cc pump shaft C6-S3**

*Parts configuration*

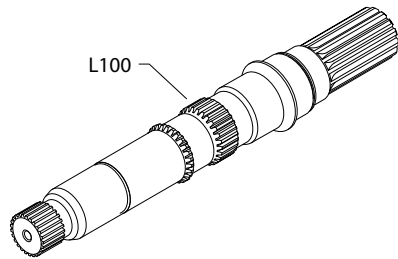
**(C6, C7, D7, F1, F5,  
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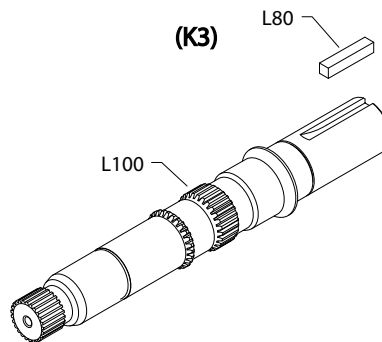
**(F3)**



**(J2 & J3)**



**(K3)**



\* Included in base pump seal kit Q210

## Shaft

Order code: C6

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L100	98-38		509239	Shaft, 21 tooth spline	1

Order code: C7

L100	89-46		341958 (8200169)	Shaft, 23 tooth spline	1
L100	87-02	89-45	320911 (8200119)	Shaft, 23 tooth spline ( <a href="#">SB-1989-023</a> on page 268)	1

Order code: D7

L100	94-14		504307	Shaft, 23 tooth spline, M10 threaded tapped hole	1
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Order code: F1

L100	89-46		341974 (8200170)	Shaft, 13 tooth spline	1
L100	87-02	89-45	306688 (8200118)	Shaft, 13 tooth spline ( <a href="#">SB-1989-023</a> on page 268)	1

Order code: F3

L100	96-45		8200330	Shaft, 13 tooth spline with retaining ring grooves	1
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Order code: F5

L100	13-49		11137386	Shaft, 13 tooth spline, 5/8-11 threaded tapped hole	1
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Order code: F7

L100	07-46		11030912	Shaft, 23 tooth spline	1
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Order code: G1

L100	94-17		504352	Shaft, 25 tooth spline	1
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Order code: J2

L100	92-16		8200389	Shaft, 23 tooth spline with no relief	1
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Order code: J3

L100	92-16		8200234	Shaft, 14 tooth spline with no relief	1
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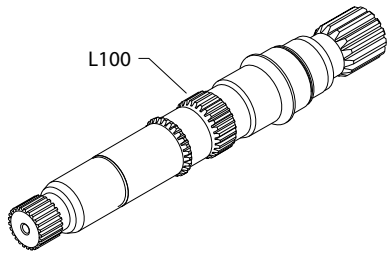
[Parts continue to the next 2 pages.](#)

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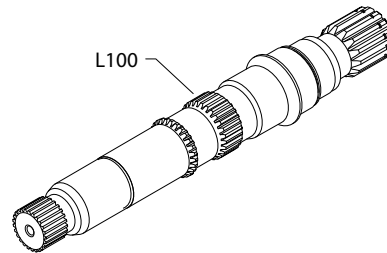
### Shaft

Parts configuration

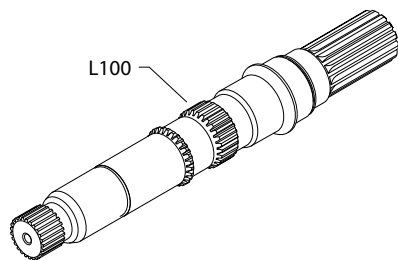
**(C6, C7, D7, F1, F5,  
F7, G1, S1, S3)**



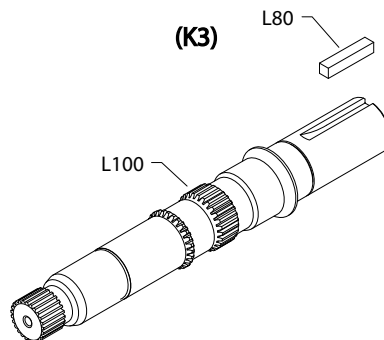
**(F3)**



**(J2 & J3)**



**(K3)**



\* Included in base pump seal kit Q210

## Shaft

Order code: K3

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L80	87-02		9003261-3724	Key	1
L100	89-46		8200176	Shaft, straight key, 1.75" diameter	1
L100	87-02	89-45	8200164	Shaft, straight key, 1.75" diameter ( <a href="#">SB-1989-023</a> on page 268)	1

Order code: S1

L100	89-46		341982 (8200171)	Shaft, 14 tooth spline	1
L100	87-02	89-45	312835 (8200143)	Shaft, 14 tooth spline ( <a href="#">SB-1989-023</a> on page 268)	1

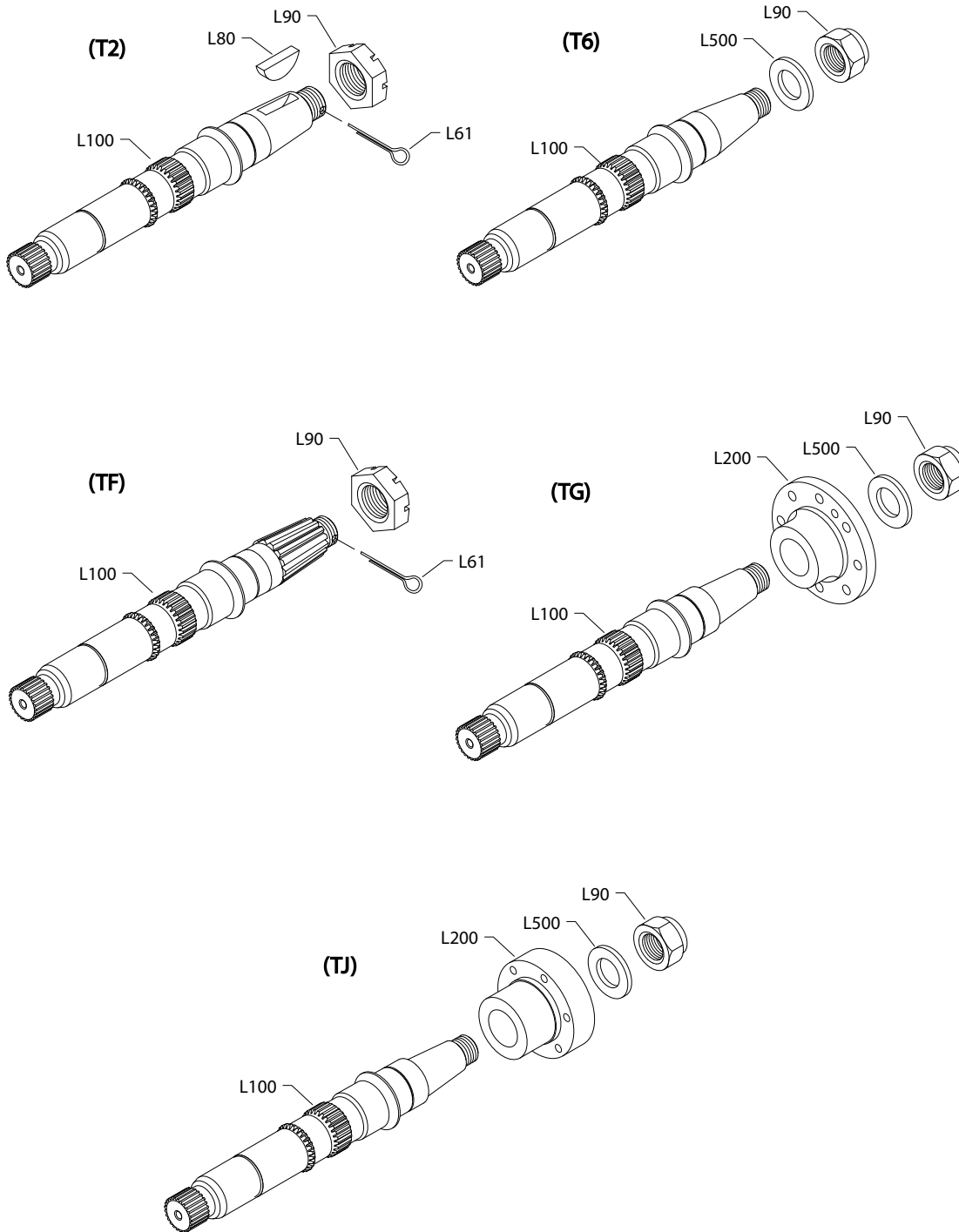
Order code: S3

L100	89-46		8200172	Shaft, 16 tooth spline	1
L100	87-02	89-45	8200120	Shaft, 16 tooth spline ( <a href="#">SB-1989-023</a> on page 268)	1

**Shaft**

**S90 100cc pump shaft T2-TJ**

*Parts configuration*



## Shaft

Order code: T2

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L61	87-02		716779 (9004600-1230)	Cotter pin	1
L80	87-02		9003310-3724	Key	1
L90	87-02		5000606	Slotted nut	1
L100	89-46		342006 (11111525)	Shaft, 1.5" tapered	1
L100	87-02	89-45	8200133	Shaft, 1.5" tapered ( <a href="#">SB-1989-023</a> on page 268)	1

Order code: T6

L90	97-42		504060	Slotted nut	1
L100	97-42		511617	Shaft, 1.5" tapered	1
L500	97-42		511627	Washer	1

Order code: TF

L61	87-02		716779 (9004600-1230)	Cotter pin	1
L90	87-02		9700189	Slotted nut	1
L100	89-46		342006 (8200179)	Shaft, 1.5" tapered spline	1
L100	87-02	89-45	8200132	Shaft, 1.5" tapered spline ( <a href="#">SB-1989-023</a> on page 268)	1

Order code: TG

L90	97-42		504060	Lock nut, M24	1
L100	97-42		511617	Shaft, 1.5" tapered spline	1
L200	97-42		504061	Flange	1
L500	97-42		511627	Washer	1

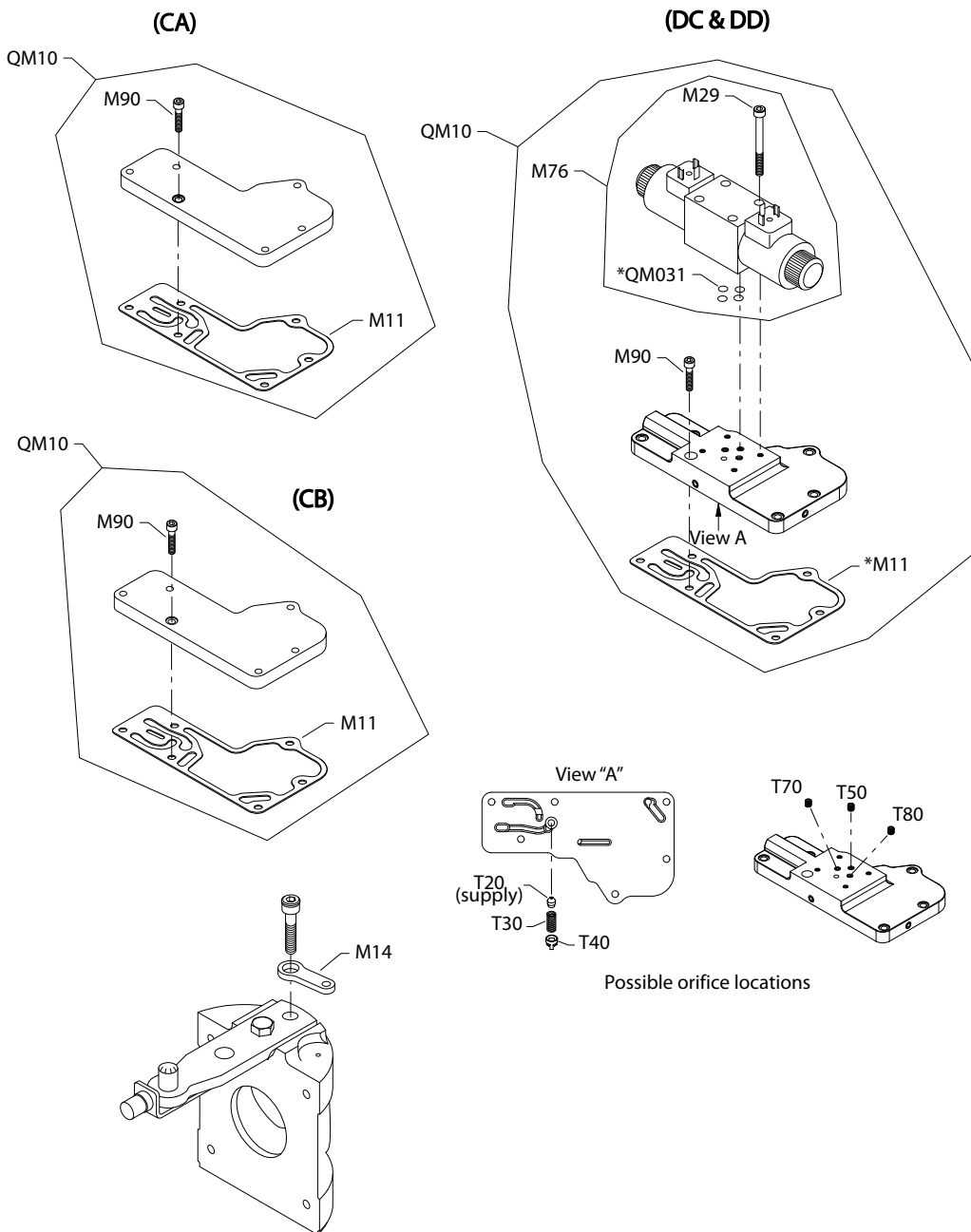
Order code: TJ

L90	97-42		504060	Lock nut, M24	1
L100	97-42		511617	Shaft, 1.5" tapered spline	1
L200	97-42		511462	Flange	1
L500	97-42		511627	Washer	1

**Controls**

**S90P control CA-DD**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.



## Controls

Order code: CA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	87-02		8800923	Control gasket	1
M90	87-02		693341 (9007314-0606)	Screw	6
QM10	87-02		8102M0CA-A	Control cover plate kit	1

Order code: CB

M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M90	87-02		693341 (9007314-0606)	Screw	6
QM10	87-02		8102M0CA-A	Control cover plate kit	1

Order code: DC

M11	87-02		8800923	Control gasket	1
M29	87-02		035592	Screw	4
M76	87-02		687103	Solenoid valve, 12v	1
M90	87-02		693341 (9007314-0606)	Screw	6
QM10	87-02		8102M0DC-A	Control kit, 12v	1
QM031	87-02		11099647	O-ring kit	1
QM210	87-02		11096172	Control seal kit	1

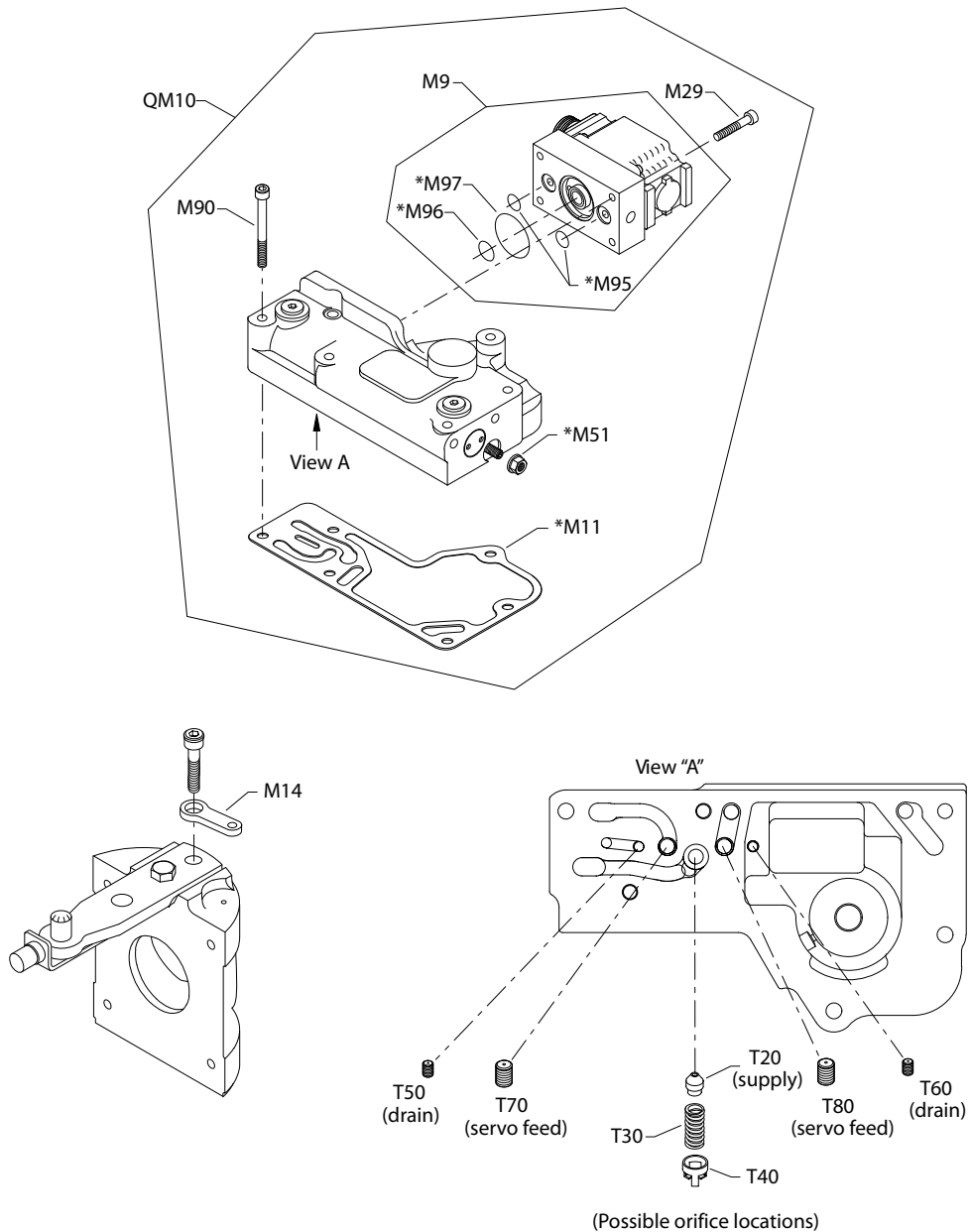
Order code: DD

M11	87-02		8800923	Control gasket	1
M29	87-02		035592	Screw	4
M76	87-02		549907	Solenoid valve, 24v	1
M90	87-02		693341 (9007314-0606)	Screw	6
QM10	87-02		8102M0DD-A	Control kit, 24v	1
QM031	87-02		11099647	O-ring kit	1
QM210	87-02		11096172	Control seal kit	1

**Controls**

**S90 100cc pump control EA-EP**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic PCP and swashplate used to show part location only.

\* Included in control seal kit QM210

## Controls

Order code: EA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	91-16		MCV110A1017	PCP, MS connector	1
M11	91-16		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	91-16	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	91-16		K07067	Screw	4
M51	91-16		9003509-0008	Seal nut	1
M90	91-16		692889 (9007314-0611)	Screw	6
M95	91-16		318337 (9004104-0120)	O-ring	2
M96	91-16		011304 (9004104-0140)	O-ring	1
M97	91-16		318345 (9004104-0240)	O-ring	1
QM10	91-16		8202M0EA-B	EDC kit, MS connector	1
QM210	91-16		11096174	Control seal kit	1

Order code: EH

M9	99-05		MCV110A1058	PCP, MS connector	1
M11	99-05		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M29	99-05		K07067	Screw	4
M51	99-05		9003509-0008	Seal nut	1
M90	99-05		692889 (9007314-0611)	Screw	6
M95	99-05		318337 (9004104-0120)	O-ring	2
M96	99-05		011304 (9004104-0140)	O-ring	1
M97	99-05		318345 (9004104-0240)	O-ring	1
QM10	99-05		11013636	EDC kit, MS connector	1
QM210	99-05		11096174	Control seal kit	1

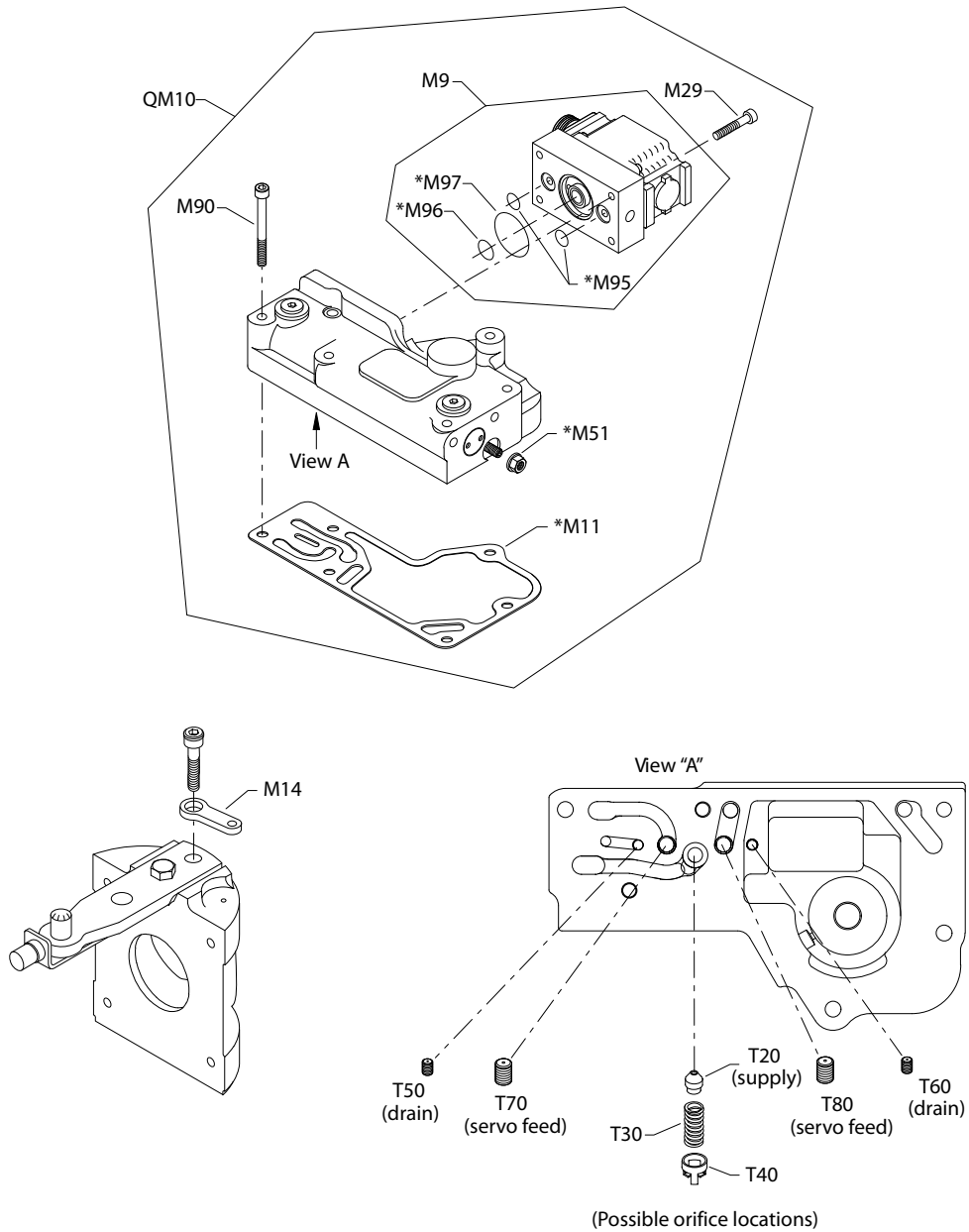
Order code: EK

M9	99-15		MCV110A1014	PCP, DEUTSCH connector	1
M11	99-15		8800923	Control gasket	1
M14	99-15		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M29	99-15		K07067	Screw	4
M51	99-15		9003509-0008	Seal nut	1
M90	99-15		692889 (9007314-0611)	Screw	6
M95	99-15		318337 (9004104-0120)	O-ring	2
M96	99-15		011304 (9004104-0140)	O-ring	1
M97	99-15		318345 (9004104-0240)	O-ring	1
QM10	99-15		11018282	EDC kit, DEUTSCH connector	1
QM210	99-15		11096174	Control seal kit	1

[Parts continue to the next 2 pages.](#)

**Controls**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic PCP and washplate used to show part location only.

\* Included in control seal kit QM210

## Controls

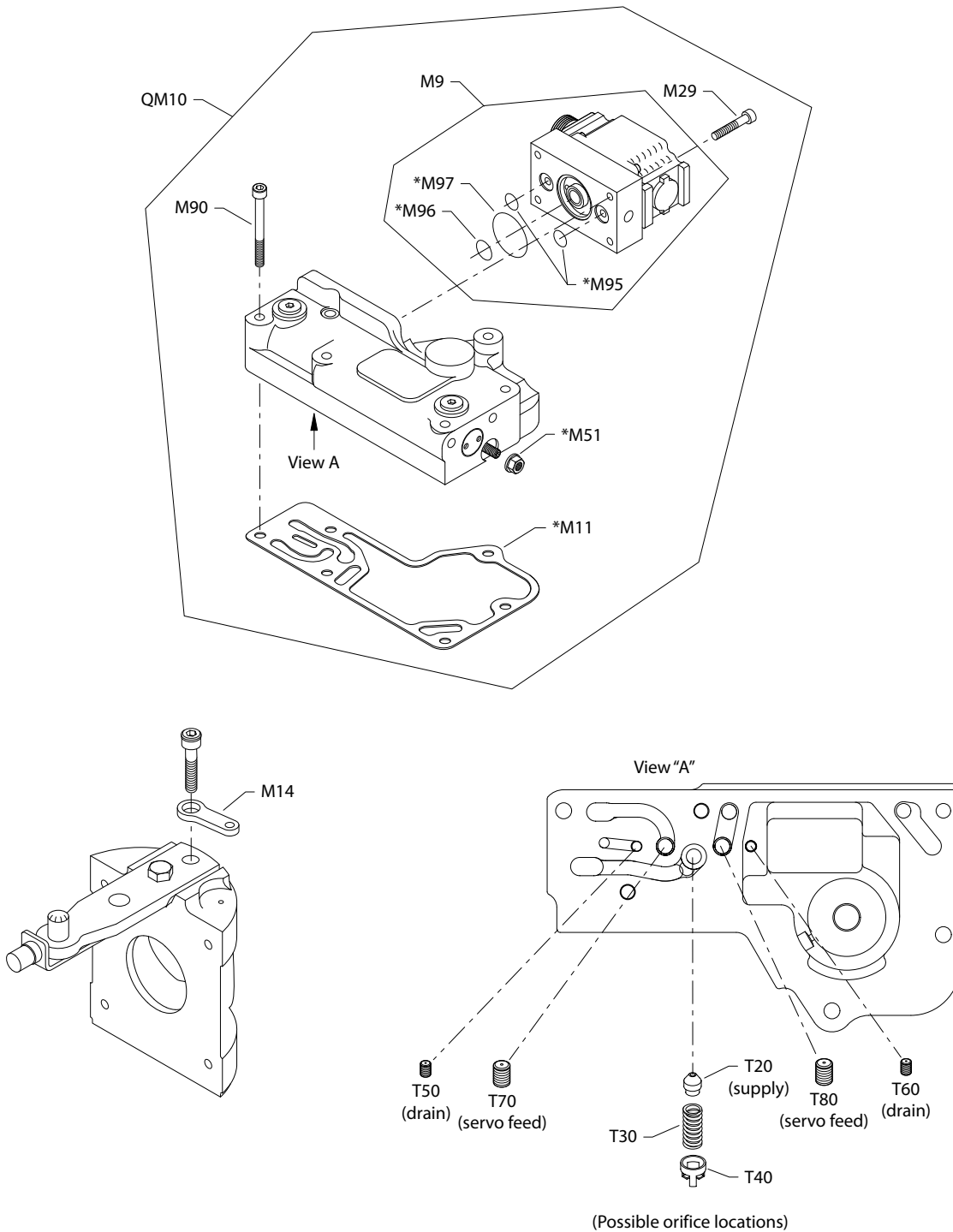
Order code: EP

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	91-07		MCV110A1058	PCP, Packard connector	1
M11	91-07		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	91-07	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	91-07		K07067	Screw	4
M51	91-07		9003509-0008	Seal nut	1
M90	91-07		692889 (9007314-0611)	Screw	6
M95	91-07		318337 (9004104-0120)	O-ring	2
M96	91-07		011304 (9004104-0140)	O-ring	1
M97	91-07		318345 (9004104-0240)	O-ring	1
QM10	91-07		8202M0EP-B	EDC kit, Packard connector	1
QM210	91-07		11096174	Control seal kit	1

**Controls**

**S90 100cc pump control EV-EZ**

*Parts configuration*



\* Included in control seal kit QM210

## Controls

Order code: EV

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	97-24		MCV110A1058	PCP, Packard connector	1
M11	97-24		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	97-24	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	97-24		K07067	Screw	4
M51	97-24		9003509-0008	Seal nut	1
M90	97-24		692889 (9007314-0611)	Screw	6
M95	97-24		318337 (9004104-0120)	O-ring	2
M96	97-24		011304 (9004104-0140)	O-ring	1
M97	97-24		318345 (9004104-0240)	O-ring	1
QM10	97-24		11013636	EDC kit, Packard connector	1
QM210	97-24		11096174	Control seal kit	1

Order code: EX

M9	99-05		MCV110A1090	PCP, Metripack connector	1
M11	99-05		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M29	99-05		K07067	Screw	4
M51	99-05		9003509-0008	Seal nut	1
M90	99-05		692889 (9007314-0611)	Screw	6
M95	99-05		318337 (9004104-0120)	O-ring	2
M96	99-05		011304 (9004104-0140)	O-ring	1
M97	99-05		318345 (9004104-0240)	O-ring	1
QM10	99-05		11099895	EDC kit, Metripack connector	1
QM210	99-05		11096174	Control seal kit	1

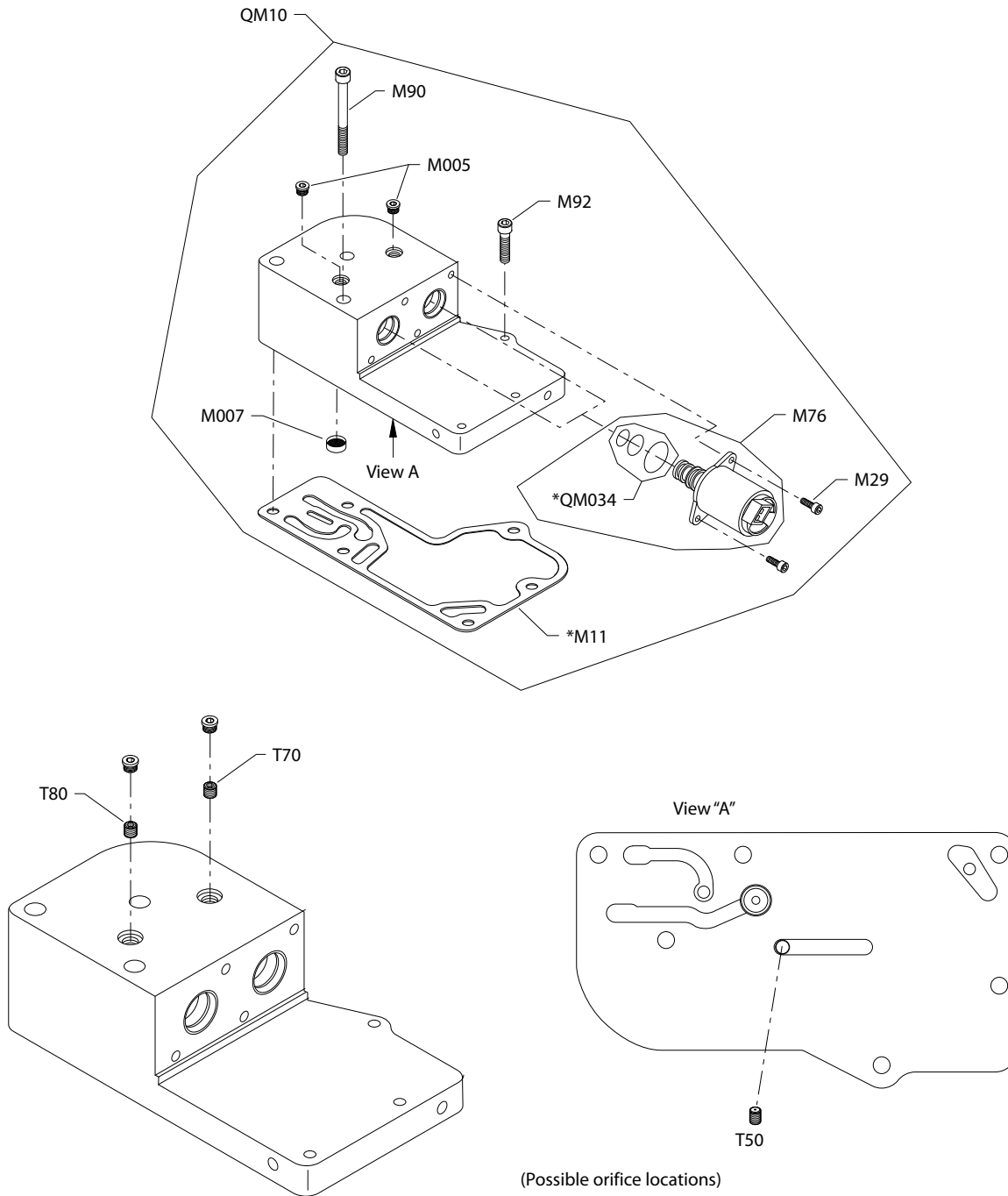
Order code: EZ

M9	94-29		MCV110A1017	PCP, MS connector	1
M11	94-29		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	97-24	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> )	1
M29	94-29		K07067	Screw	4
M51	94-29		9003509-0008	Seal nut	1
M90	94-29		692889 (9007314-0611)	Screw	6
M95	94-29		318337 (9004104-0120)	O-ring	2
M96	94-29		011304 (9004104-0140)	O-ring	1
M97	94-29		318345 (9004104-0240)	O-ring	1
QM10	94-29		11099896	EDC kit, MS connector	1
QM210	94-29		11096174	Control seal kit	1

**Controls**

**S90P control FA-FD**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210



## Controls

Order code: FA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	98-14		8800923	Control gasket	1
M29	98-14		067694	Screw	4
M76	98-14		518080	Solenoid valve, 12 volt, 25 bar	2
M90	98-14		9007314-0614	Screw	3
M92	98-14		693341 (9007314-0606)	Screw	3
M007	98-14		K00775	Filter screen	1
QM10	98-14		11015079	NFPE control kit, 12 volt, 25 bar	1
QM034	98-14		11099849	Solenoid valve seal kit	2
QM210	98-14		11100028	Control seal kit	1

Order code: FB

M11	98-14		8800923	Control gasket	1
M29	98-14		067694	Screw	4
M76	98-14		518081	Solenoid valve, 24 volt, 25 bar	2
M90	98-14		9007314-0614	Screw	3
M92	98-14		693341 (9007314-0606)	Screw	3
M007	98-14		K00775	Filter screen	1
QM10	98-14		11015080	NFPE control kit, 24 volt, 25 bar	1
QM034	98-14		11099849	Solenoid valve seal kit	2
QM210	98-14		11100028	Control seal kit	1

Order code: FC

M11	98-14		8800923	Control gasket	1
M29	98-14		067694	Screw	4
M76	98-14		521709	Solenoid valve, 12 volt, 32 bar	2
M90	98-14		9007314-0614	Screw	3
M92	98-14		693341 (9007314-0606)	Screw	3
M007	98-14		K00775	Filter screen	1
QM10	98-14		8510230	NFPE control kit, 12 volt, 32 bar	1
QM034	98-14		11099849	Solenoid valve seal kit	2
QM210	98-14		11100028	Control seal kit	1

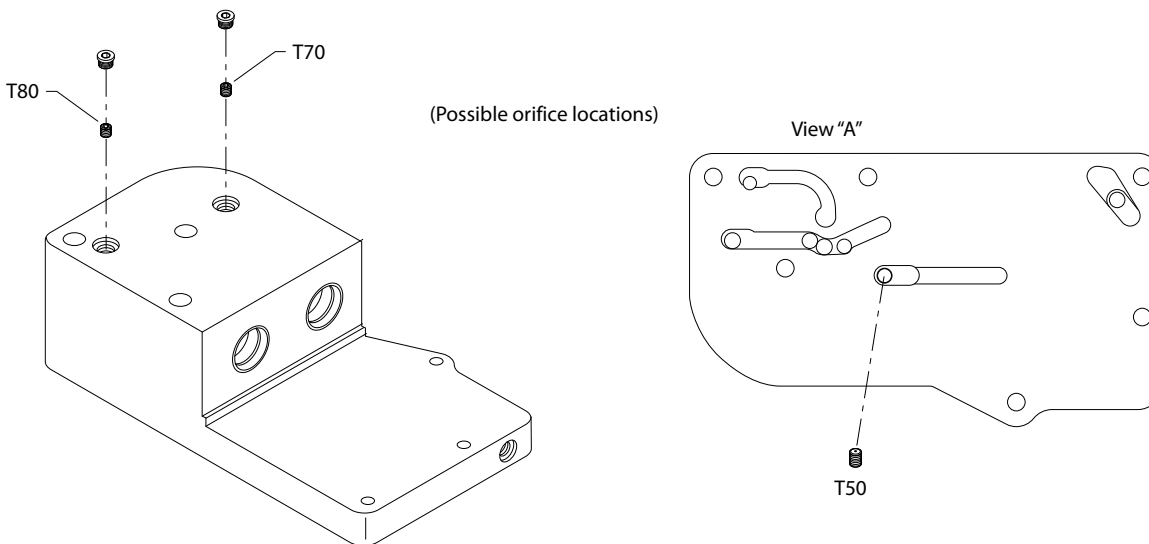
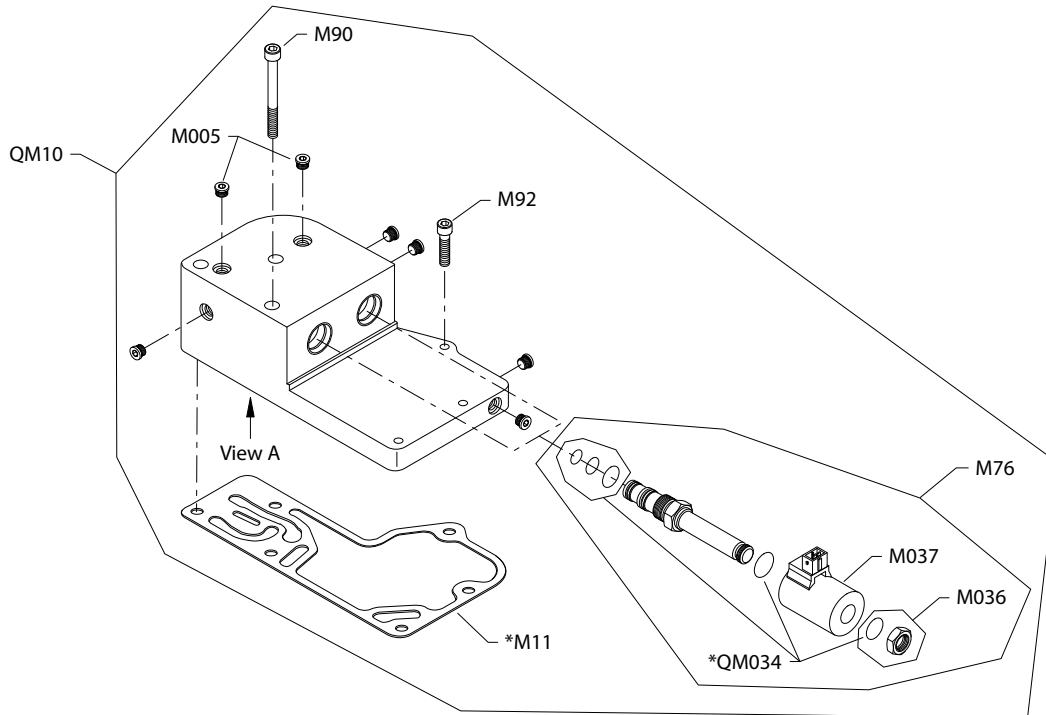
Order code: FD

M11	98-14		8800923	Control gasket	1
M29	98-14		067694	Screw	4
M76	98-14		517214	Solenoid valve, 24 volt, 32 bar	2
M90	98-14		9007314-0614	Screw	3
M92	98-14		693341 (9007314-0606)	Screw	3
M007	98-14		K00775	Filter screen	1
QM10	98-14		11015081	NFPE control kit, 24 volt, 32 bar	1
QM034	98-14		11099849	Solenoid valve seal kit	2
QM210	98-14		11100028	Control seal kit	1

**Controls**

**S90P control FG, FH**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: FG

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	00-30		8800923	Control gasket	1
M76	00-30		516006	Solenoid valve, 12 volt, 32 bar	2
M90	00-30		9007314-0614	Screw	3
M92	00-30		693341 (9007314-0606)	Screw	3
M005	00-30		11040532	Plug assembly	2
QM10	00-30		11026563	NFPE control kit, 12 volt, 32 bar	1
QM034	00-30		11100185	Solenoid valve seal kit	2
QM036	00-30		518088	Coil nut kit	2
QM037	00-30		516003	Coil, 12v Jet connector	2
QM210	00-30		11100001	Control seal kit	1

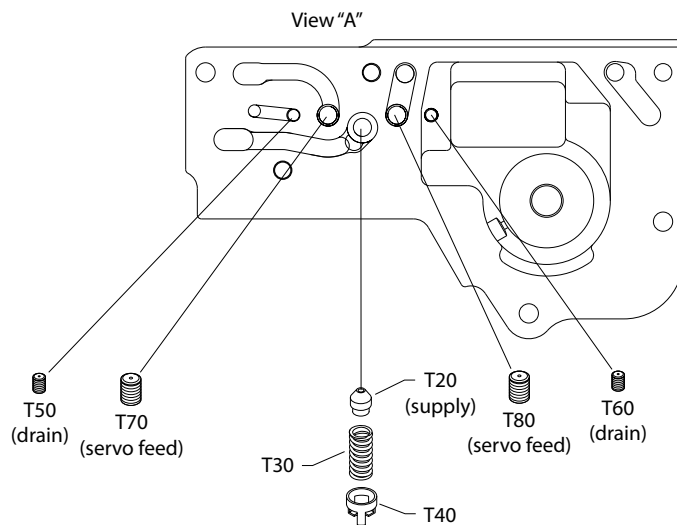
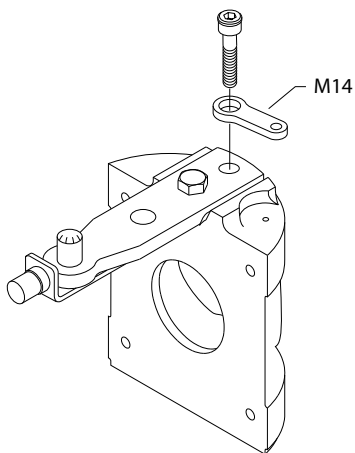
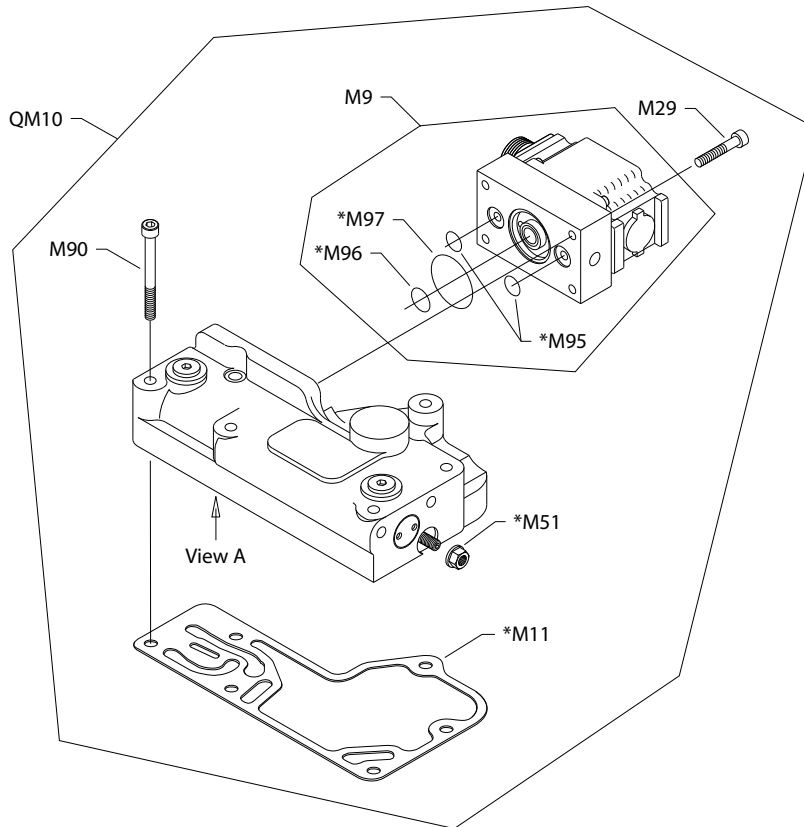
Order code: FH

M11	00-30		8800923	Control gasket	1
M76	00-30		515617	Solenoid valve, 24 volt, 32 bar	2
M90	00-30		9007314-0614	Screw	3
M92	00-30		693341 (9007314-0606)	Screw	3
M005	00-30		11040532	Plug assembly	2
QM10	00-30		11026569	NFPE control kit, 24 volt, 32 bar	1
QM034	00-30		11100185	Solenoid valve seal kit	2
QM036	00-30		518088	Coil nut kit	2
QM037	00-30		516004	Coil, 24v Jet connector	2
QM210	00-30		11100001	Control seal kit	1

**Controls**

**S90 100cc pump control GA**

*Parts configuration*



(Possible orifice locations)

\* Included in control seal kit QM210

## Controls

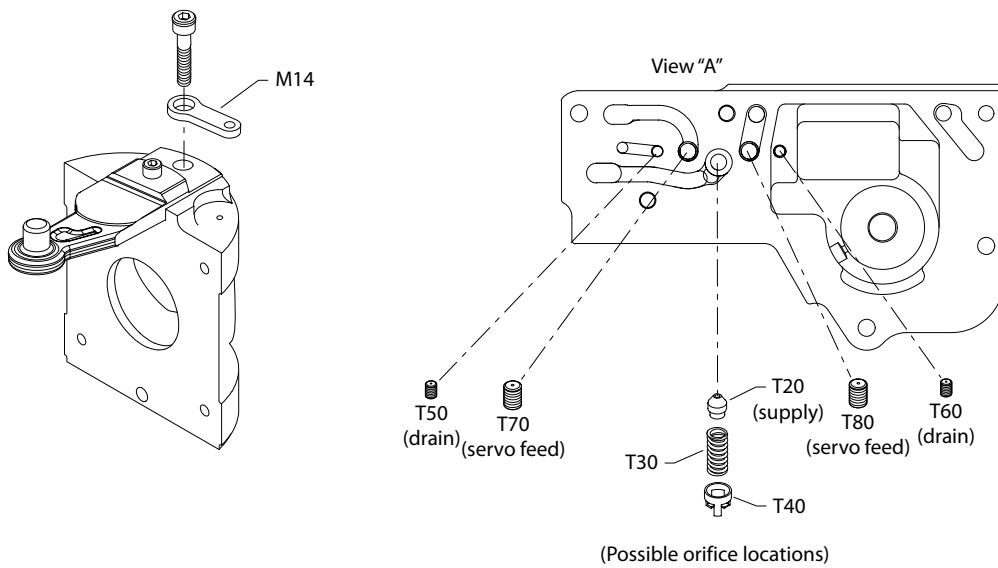
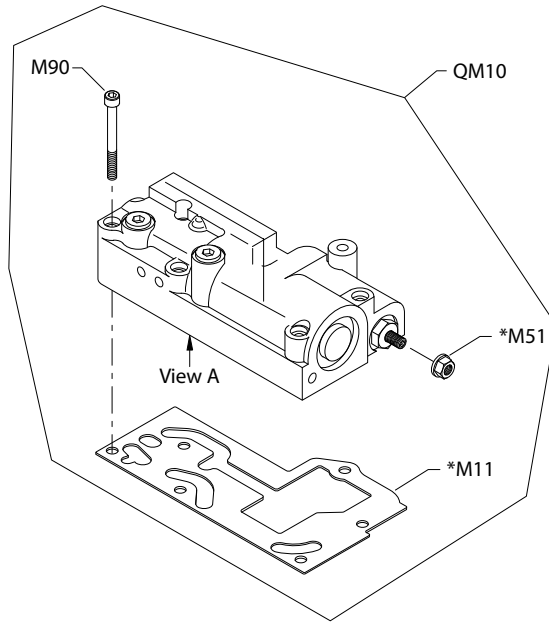
Order code: GA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	01-28		MCV110A1059	PCP, Packard connector	1
M11	01-28		8800923	Control gasket	1
M14	01-28		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	01-28		K07067	Screw	4
M51	01-28		9003509-0008	Seal nut	1
M90	01-28		692889 (9007314-0611)	Screw	6
M95	01-28		318337 (9004104-0120)	O-ring	2
M96	01-28		011304 (9004104-0140)	O-ring	1
M97	01-28		318345 (9004104-0240)	O-ring	1
QM10	01-28		8510302	EDC kit, Packard connector	1
QM210	01-28		11096174	Control seal kit	1

**Controls**

**S90P control HD, HE**

*Parts configuration*



\* Included in control seal kit QM210

## Controls

Order code: HD

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	97-44		508880	Control gasket	1
M14	97-44		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M51	97-44		505412 (9003509-0008)	Seal nut	1
M90	97-44		692889 (9007314-0611)	Screw	6
QM10	97-44		11087556	HDC kit, 6-18 bar	1
QM210	97-44		11096264	Control seal kit	1

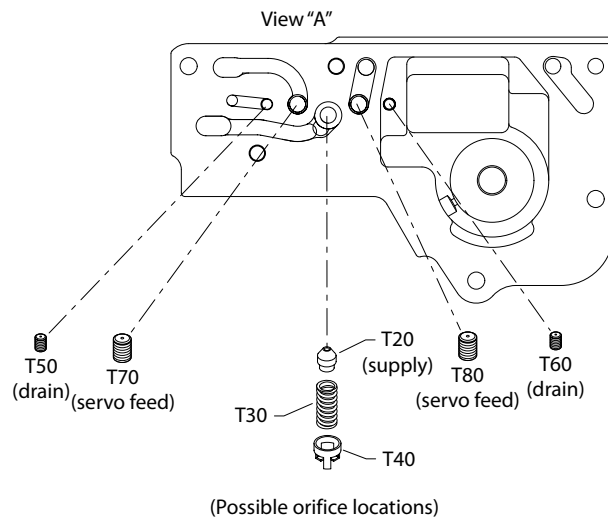
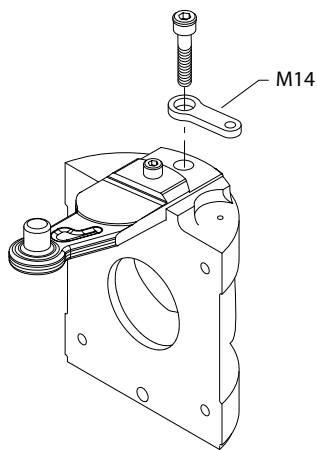
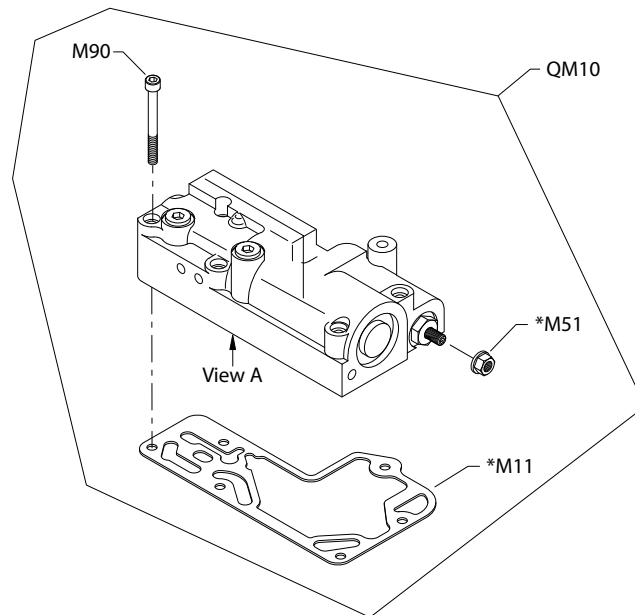
Order code: HE

M11	97-06		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	97-06		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M51	97-06		505412 (9003509-0008)	Seal nut	1
M90	97-06		692889 (9007314-0611)	Screw	6
QM10	97-06		8510277	HDC kit, 8-16.5 bar	1
QM210	97-06		11096266	Control seal kit	1

**Controls**

**S90P control HF-HS**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210



## Controls

Order code: HF

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	92-15		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	92-15	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M51	92-15		505412 (9003509-0008)	Seal nut	1
M90	92-15		692889 (9007314-0611)	Screw	6
QM10	92-15		8202M0HF-A	HDC kit, 3-11 bar	1
QM210	92-15		11096266	Control seal kit	1

Order code: HK

M11	92-15		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	92-15	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M51	92-15		505412 (9003509-0008)	Seal nut	1
M90	92-15		692889 (9007314-0611)	Screw	6
QM10	92-15		8202M0HK-A	HDC kit, 1-11 bar	1
QM210	92-15		11096266	Control seal kit	1

Order code: HM

M11	92-15		8801241	Control gasket (SB-1999-065)	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	92-15	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M51	92-15		505412 (9003509-0008)	Seal nut	1
M90	92-15		692889 (9007314-0611)	Screw	6
QM10	92-15		8202M0HM-A	HDC kit, 1.1 -6.7 bar	1
QM210	92-15		11096266	Control seal kit	1

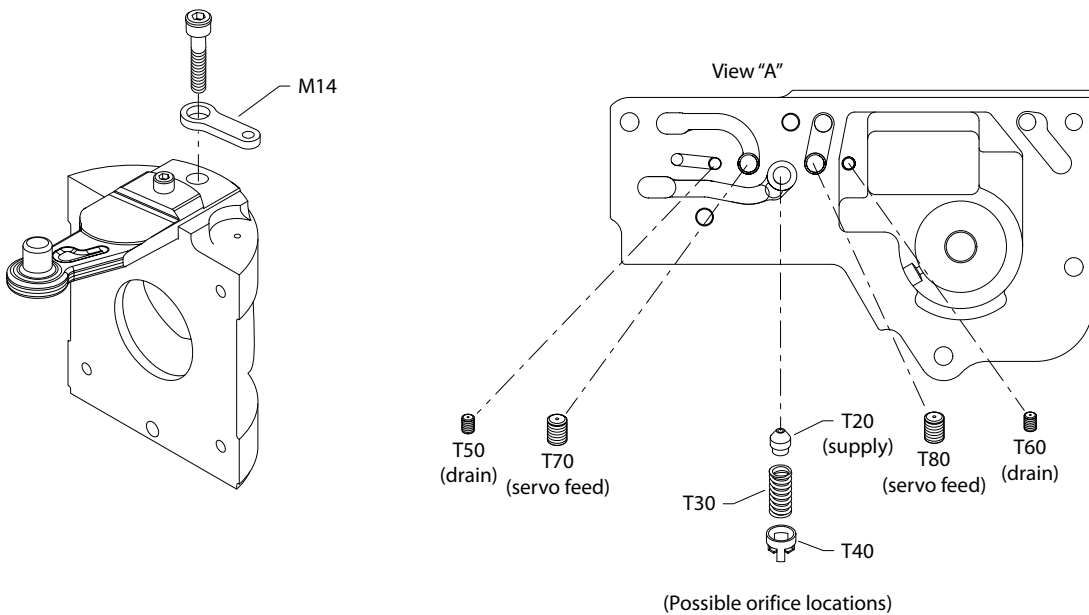
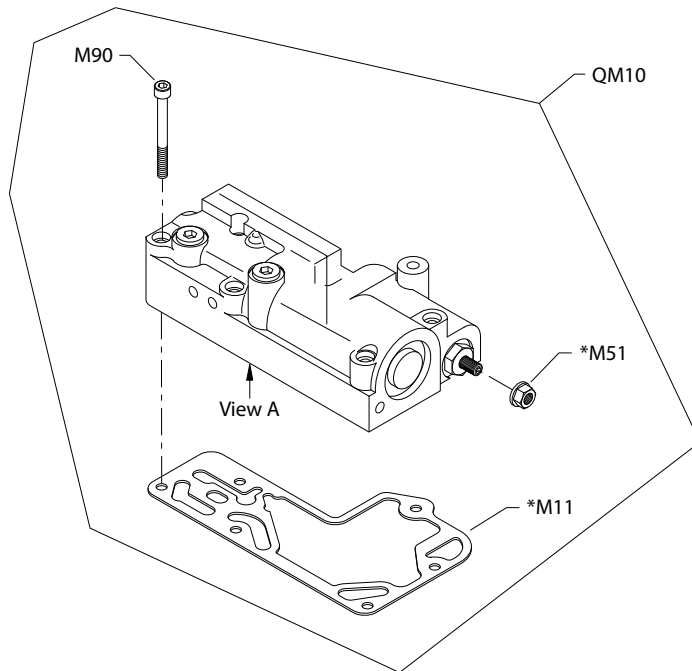
Order code: HS

M11	94-19		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-19	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M51	94-19		505412 (9003509-0008)	Seal nut	1
M90	94-19		692889 (9007314-0611)	Screw	6
QM10	94-19		8202M0HS-A	HDC kit, 6-18 bar	1
QM210	94-19		11096266	Control seal kit	1

**Controls**

**S90 100cc pump control HT-JC**

*Parts configuration*



\* Included in control seal kit QM210

## Controls

### Order code: HT

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	94-36		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-36	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M51	94-36		505412 (9003509-0008)	Seal nut	1
M90	94-36		692889 (9007314-0611)	Screw	6
QM10	94-36		11020564	HDC kit, high accuracy	1
QM210	94-36		11096266	Control seal kit	1

### Order code: HV

M11	94-36		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-36	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M51	94-36		505412 (9003509-0008)	Seal nut	1
M90	94-36		692889 (9007314-0611)	Screw	6
QM10	94-36		11013639	HDC kit, 4-39 bar	1
QM210	94-36		11096266	Control seal kit	1

### Order code: HW

M11	98-13		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	98-13		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M51	98-13		505412 (9003509-0008)	Seal nut	1
M90	98-13		692889 (9007314-0611)	Screw	6
QM10	98-13		11013639	HDC kit, 4-14 bar	1
QM210	98-13		11096266	Control seal kit	1

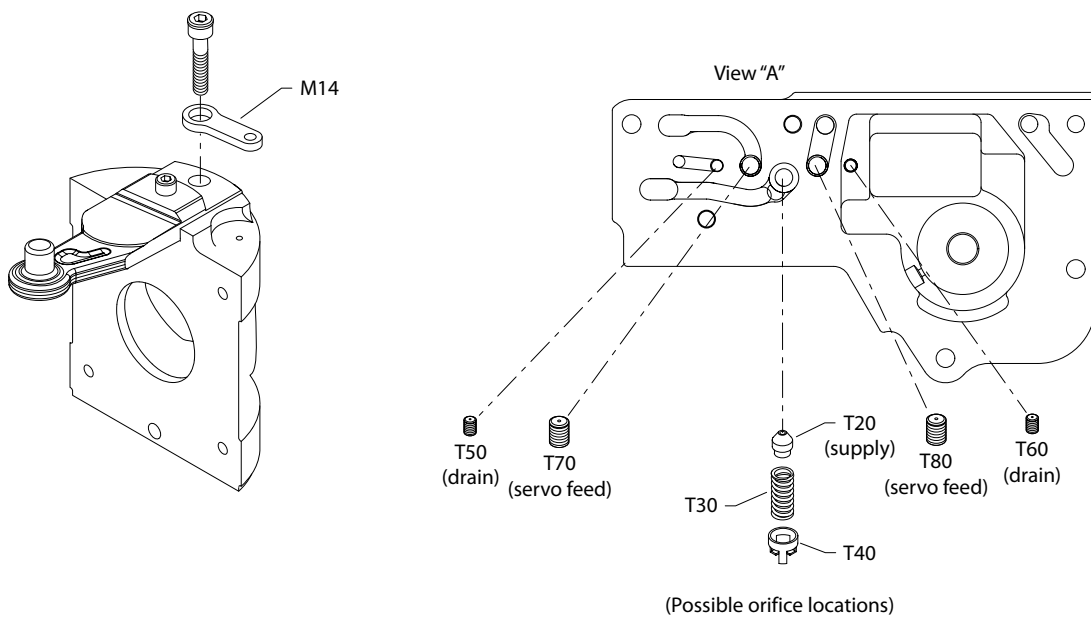
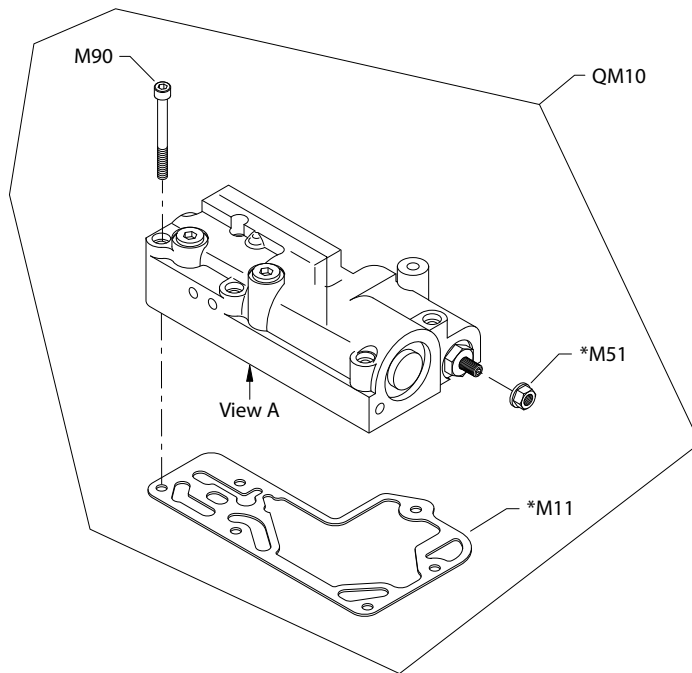
### Order code: HX

M11	00-19		8801241	Control gasket	1
M14	00-19		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M51	00-19		505412 (9003509-0008)	Seal nut	1
M90	00-19		692889 (9007314-0611)	Screw	6
QM10	00-19		11019662	HDC kit, 3-11 bar	1
QM210	00-19		11096266	Control seal kit	1

[Parts continue to next 2 pages.](#)

**Controls**

*Parts configuration*



\* Included in control seal kit QM210

## Controls

Order code: JA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	00-24		8801241	Control gasket ( <a href="#">SB-1999-065</a> on page 302)	1
M14	00-24		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M51	00-24		505412 (9003509-0008)	Seal nut	1
M90	00-24		692889 (9007314-0611)	Screw	6
QM10	00-24		8202M0HS-A	HDC kit, 6-18 bar	1
QM210	00-24		11096266	Control seal kit	1

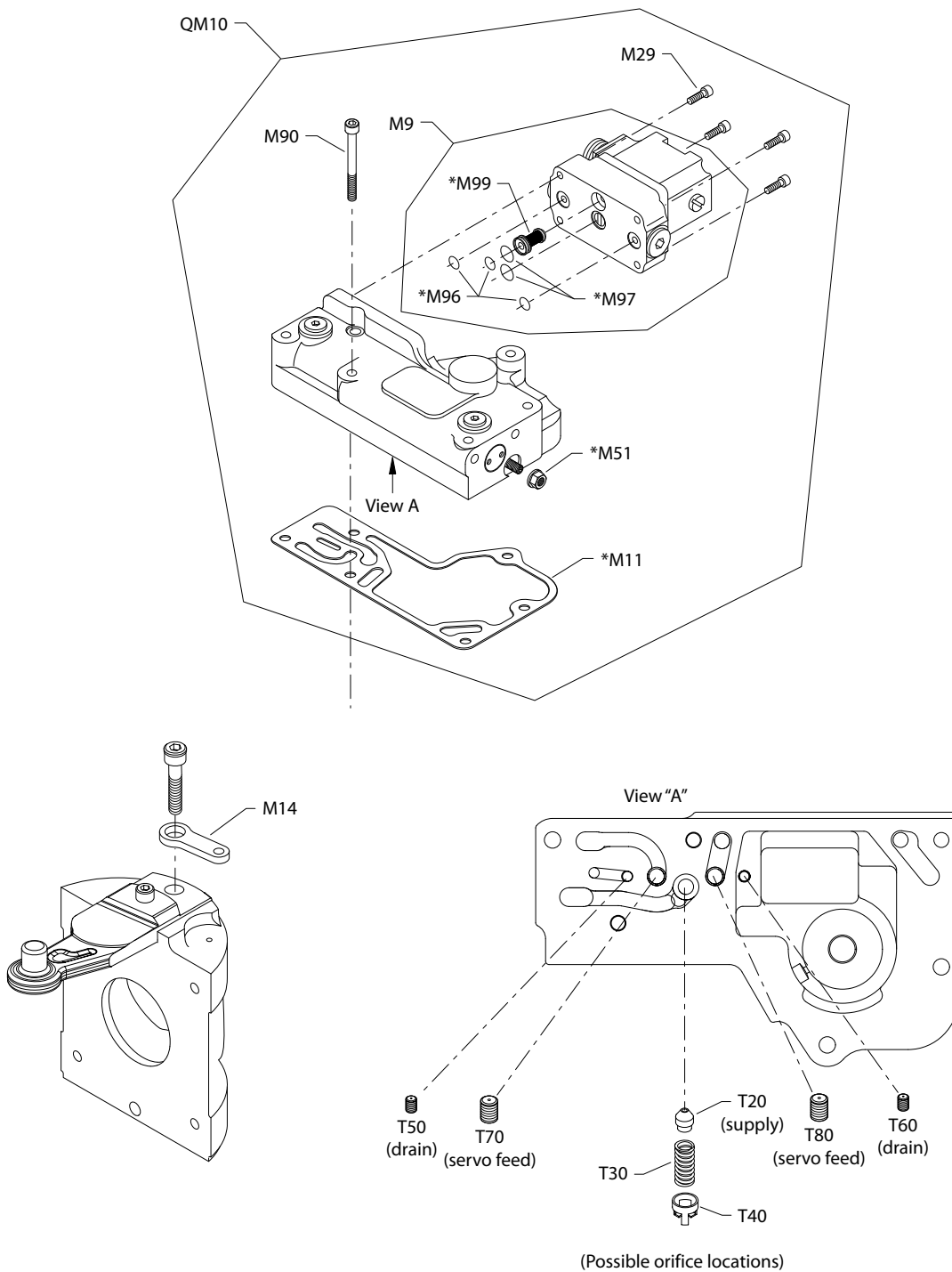
Order code: JC

M11	03-06		8801241	Control gasket	1
M14	03-06		11070306	Feedback link	1
M51	03-06		505412 (9003509-0008)	Seal nut	1
M90	03-06		692889 (9007314-0611)	Screw	6
QM10	03-06		11099898	HDC kit, 6-18 bar, steel barrel	1
QM210	03-06		11096266	Control seal kit	1

**Controls**

**S90 100cc pump control K1-K9**

*Parts configuration*



Generic PCP and swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: K1

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	12-36	14-37	MCV116C3201	PCP, DEUTSCH connector, dual coil	1
M11	12-36	14-37	8800923	Control gasket	1
M14	12-36	14-37	11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	12-36	14-37	K07067	Screw	4
M51	12-36	14-37	505412 (9003509-0008)	Seal nut	1
M90	12-36	14-37	692889 (9007314-0611)	Screw	6
M96	12-36	14-37	011296 (9004105-0120)	O-ring	3
M97	12-36	14-37	9004105-0130	O-ring	2
M99	12-36	14-37	K08572	Filter assembly	1
QM10	12-36	14-37	11121536	EDC3 kit, DEUTSCH connector, dual coil	1
QM210	12-36	14-37	11095724	Control seal kit	1

Order code: K7

M9	13-36		11101116	PCP, MS connector	1
M11	13-36		8800923	Control gasket	1
M14	13-36		11070306	Feedback link	1
M29	13-36		K07067	Screw	4
M51	13-36		505412 (9003509-0008)	Seal nut	1
M90	13-36		692889 (9007314-0611)	Screw	6
M96	13-36		011296 (9004105-0120)	O-ring	3
M97	13-36		9004105-0130	O-ring	2
M99	13-36		K08572	Filter assembly	1
QM10	13-36		11139994	EDC3 kit, MS connector	1
QM210	13-36		11095724	Control seal kit	1

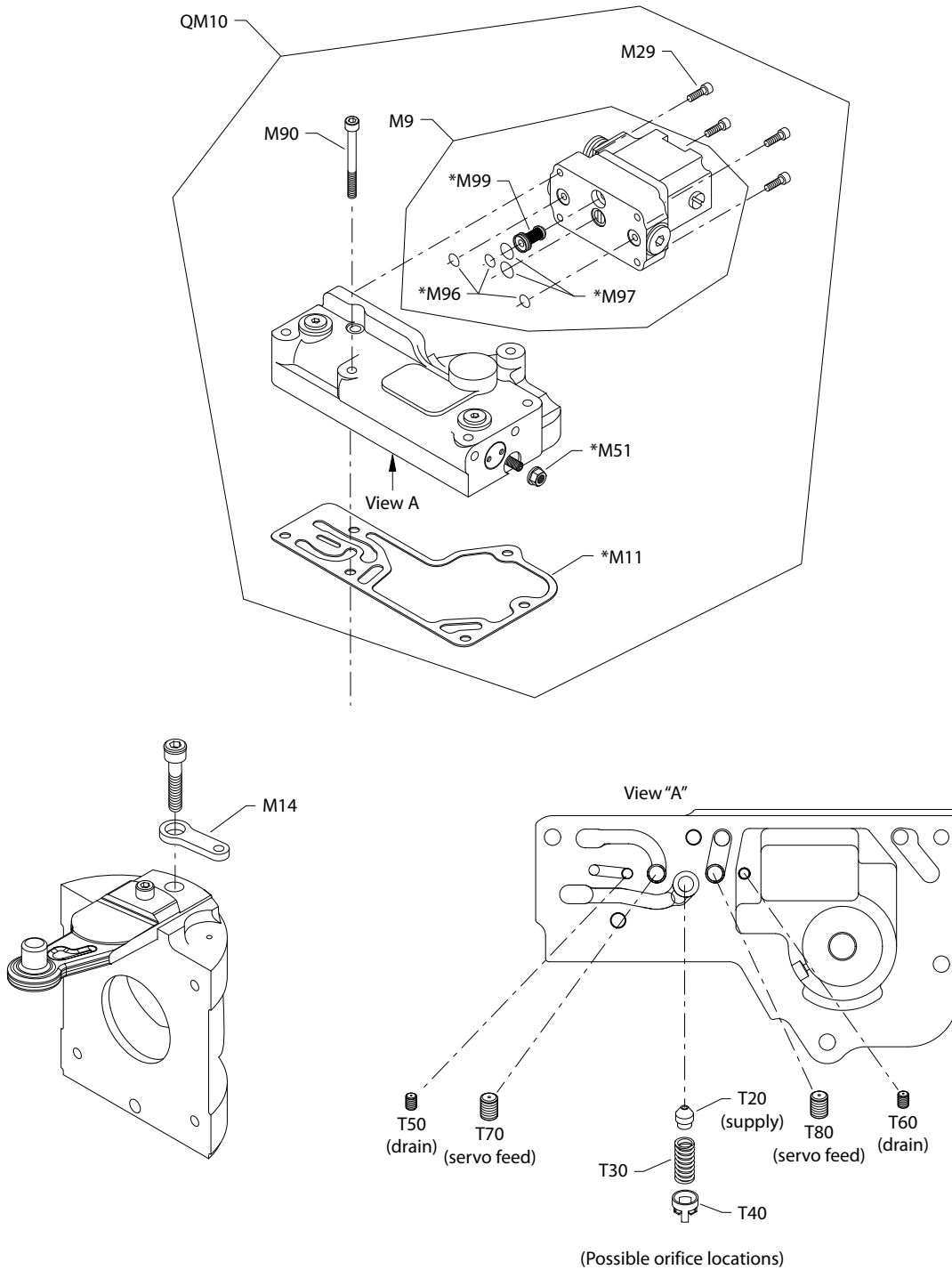
Order code: K8

M9	14-15		11101106	PCP, MS connector	1
M11	14-15		8800923	Control gasket	1
M14	14-15		11070306	Feedback link	1
M29	14-15		K07067	Screw	4
M51	14-15		505412 (9003509-0008)	Seal nut	1
M90	14-15		692889 (9007314-0611)	Screw	6
M96	14-15		011296 (9004105-0120)	O-ring	3
M97	14-15		9004105-0130	O-ring	2
M99	14-15		K08572	Filter assembly	1
QM10	14-15		11140004	EDC3 kit, MS connector	1
QM210	14-15		11095724	Control seal kit	1

[Parts continue to the next 2 pages.](#)

**Controls**

*Parts configuration*



Generic PCP and swashplate shown.

\* Included in control seal kit QM210



## Controls

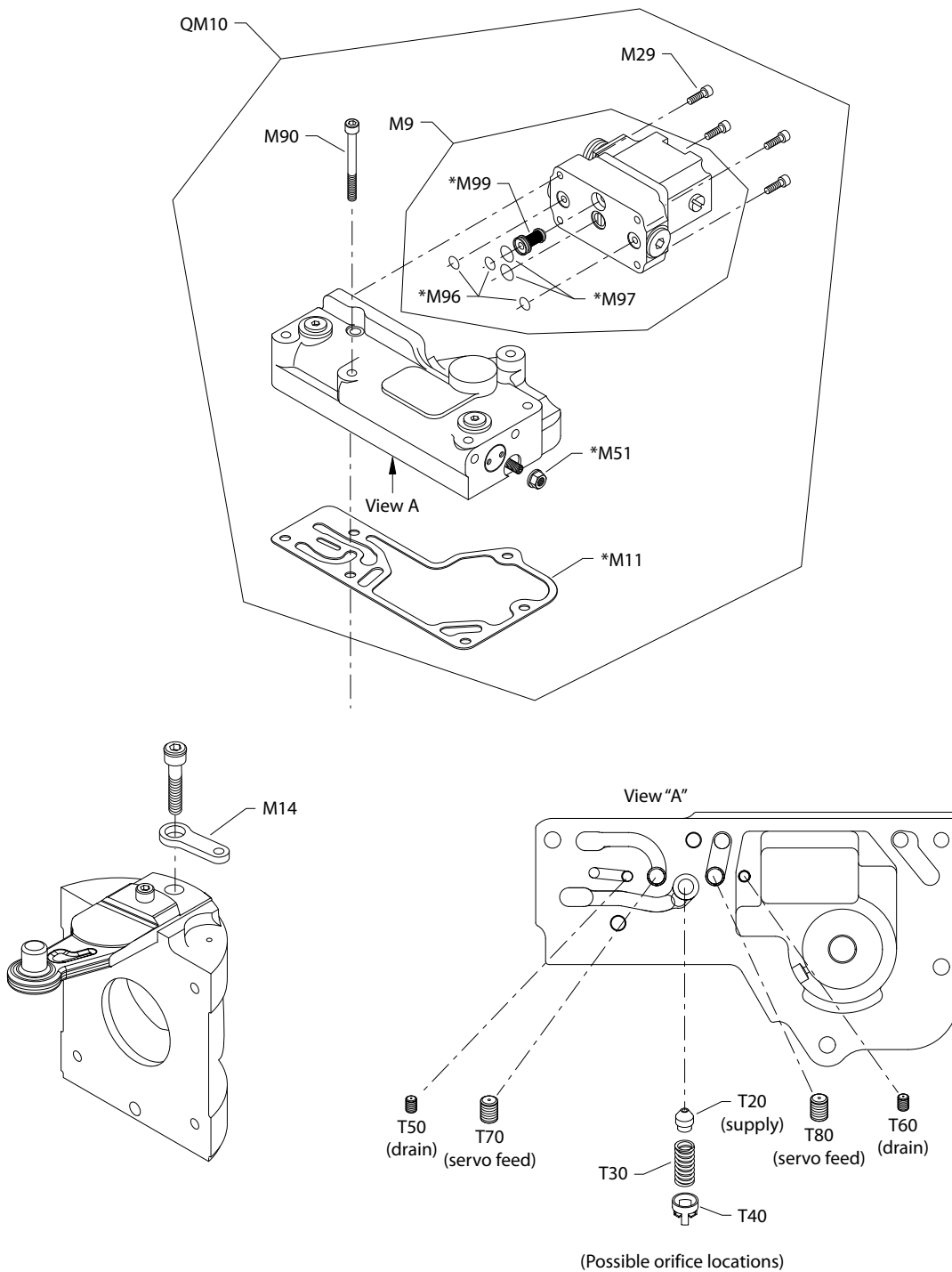
Order code: K9

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	14-36		11101118	PCP, MS connector	1
M11	14-36		8800923	Control gasket	1
M14	14-36		11070306	Feedback link	1
M29	14-36		K07067	Screw	4
M51	14-36		505412 (9003509-0008)	Seal nut	1
M90	14-36		692889 (9007314-0611)	Screw	6
M96	14-36		011296 (9004105-0120)	O-ring	3
M97	14-36		9004105-0130	O-ring	2
M99	14-36		K08572	Filter assembly	1
QM10	14-36		11140000	EDC3 kit, MS connector	1
QM210	14-36		11095724	Control seal kit	1

**Controls**

**S90 100cc pump control KA-KF**

*Parts configuration*



Generic PCP and swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: KA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	95-17		MCV116G4201	PCP, MS connector, dual coil	1
M11	95-17		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	95-17	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	95-17		K07067	Screw	4
M51	95-17		505412 (9003509-0008)	Seal nut	1
M90	95-17		692889 (9007314-0611)	Screw	6
M96	95-17		011296 (9004105-0120)	O-ring	3
M97	95-17		9004105-0130	O-ring	2
M99	95-17		K08572	Filter assembly	1
QM10	95-17		8510117	EDC3 kit, MS connector, dual coil	1
QM210	95-17		11095724	Control seal kit	1

Order code: KB

M9	15-18		11164284	PCP, dual coil	1
M11	15-18		8800923	Control gasket	1
M14	15-18		11070306	Feedback link	1
M29	15-18		K07067	Screw	4
M51	15-18		505412 (9003509-0008)	Seal nut	1
M90	15-18		692889 (9007314-0611)	Screw	6
M96	15-18		011296 (9004105-0120)	O-ring	3
M97	15-18		9004105-0130	O-ring	2
M99	15-18		K08572	Filter assembly	1
QM10	15-18		11165456	EDC3 kit, MS connector, dual coil	1
QM210	15-18		11095724	Control seal kit	1

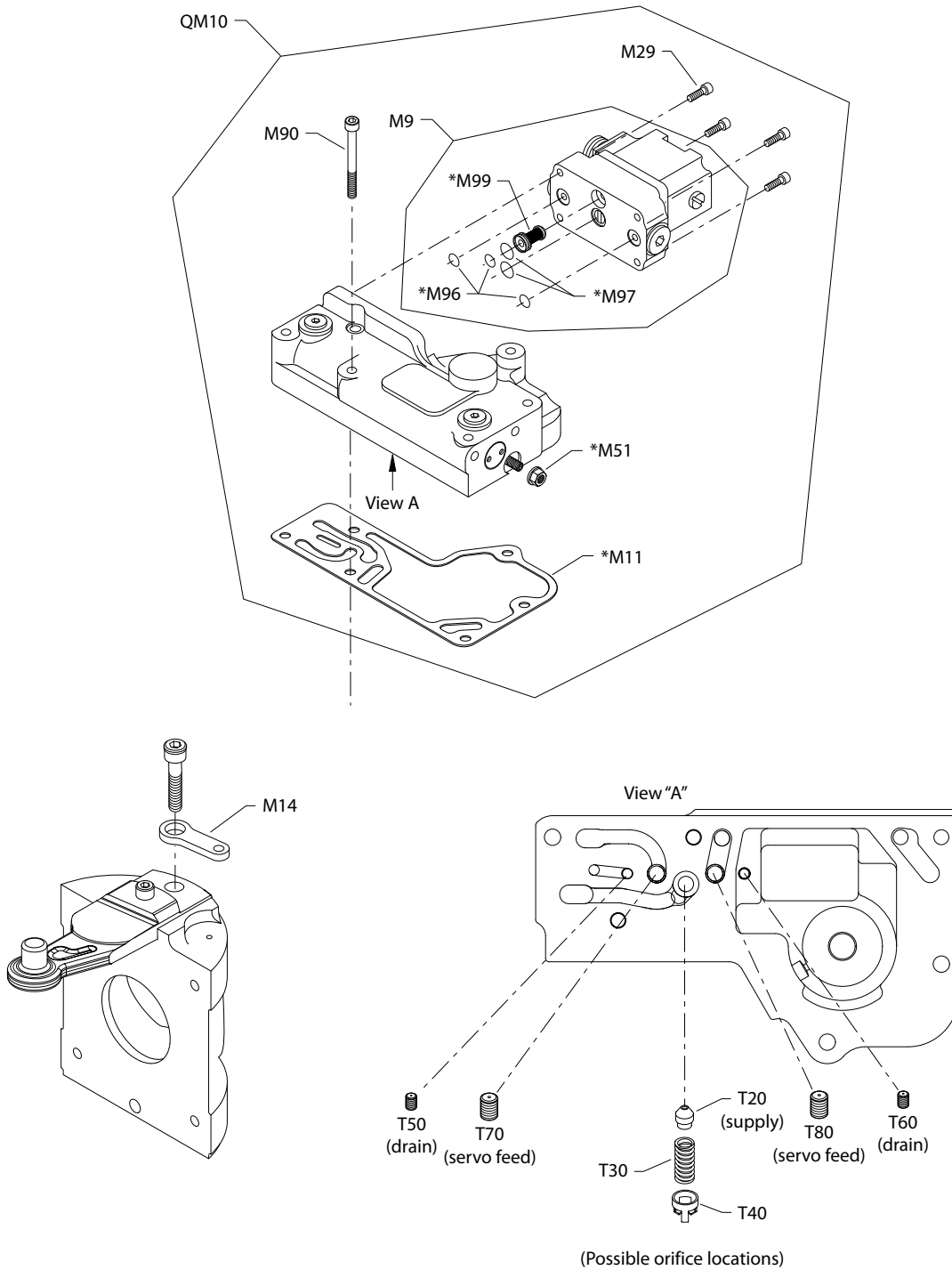
Order code: KE

M9	03-27		MCV116F3118	PCP, DEUTSCH connector	1
M11	03-27		8800923	Control gasket	1
M14	03-27		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M29	03-27		K07067	Screw	4
M51	03-27		505412 (9003509-0008)	Seal nut	1
M90	03-27		692889 (9007314-0611)	Screw	6
M96	03-27		011296 (9004105-0120)	O-ring	3
M97	03-27		9004105-0130	O-ring	1
M99	02-22		K08572	Filter assembly	1
QM10	03-27		8510323	EDC3 kit, DEUTSCH connector	1
QM210	03-27		11095724	Control seal kit	1

[Parts continue to the next 2 pages.](#)

**Controls**

*Parts configuration*



Generic PCP and washplate shown.

\* Included in control seal kit QM210

## Controls

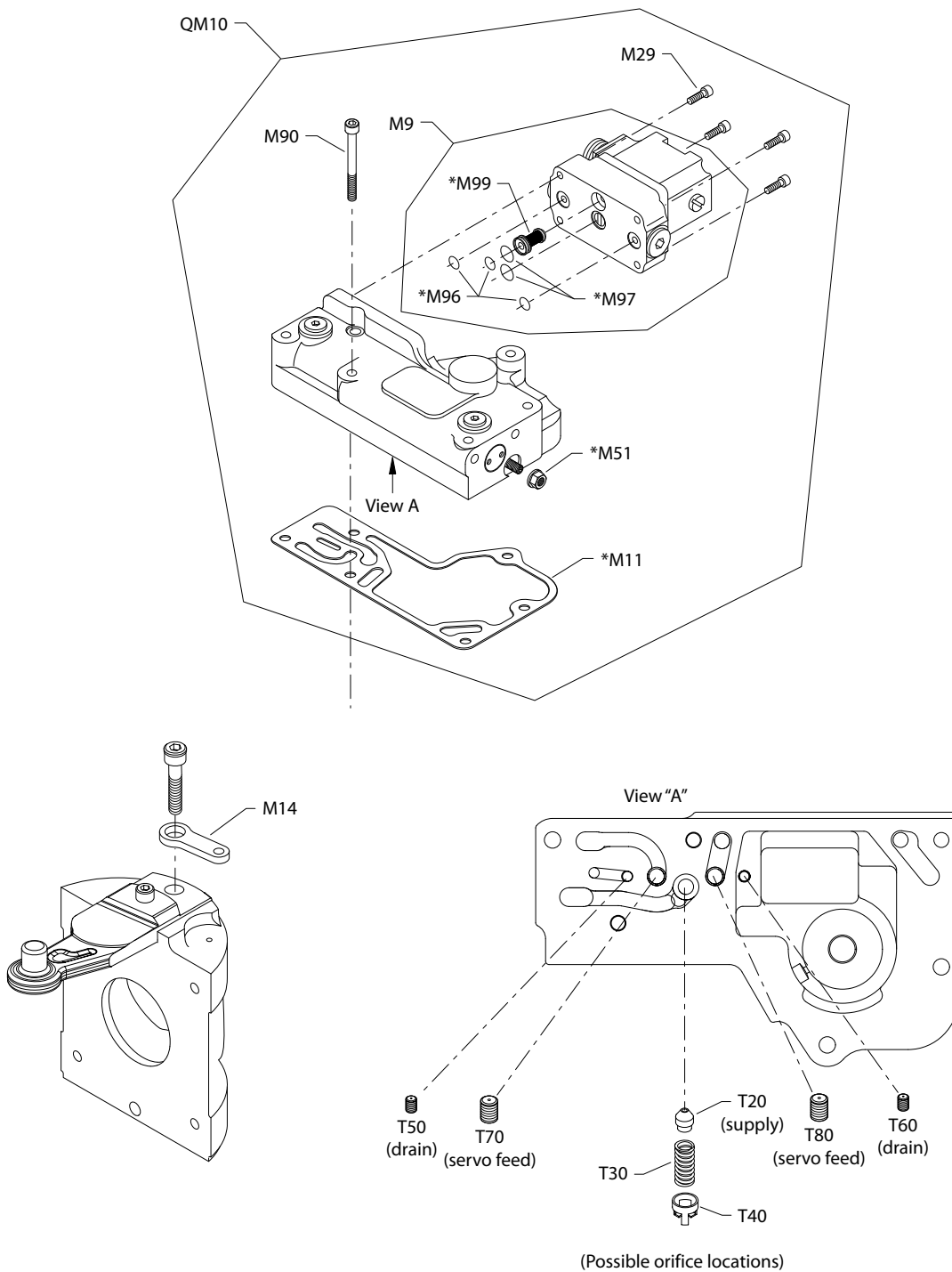
Order code: KF

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	10-38		MCV116F3118	PCP, DEUTSCH connector	1
M11	10-38		8800923	Control gasket	1
M14	10-38		11070306	Feedback link	1
M29	10-38		K07067	Screw	4
M51	10-38		505412 (9003509-0008)	Seal nut	1
M90	10-38		692889 (9007314-0611)	Screw	6
M96	10-38		011296 (9004105-0120)	O-ring	3
M97	10-38		9004105-0130	O-ring	1
M99	10-38		K08572	Filter assembly	1
QM10	10-38		11106690	EDC3 kit, DEUTSCH connector	1
QM210	10-38		11095724	Control seal kit	1

**Controls**

**S90 100cc pump control KK-KP**

*Parts configuration*



Generic PCP and swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: KK

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	98-37		MCV116G4211	PCP, Packard connector	1
M11	98-37		8800923	Control gasket	1
M14	98-37		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	98-37		K07067	Screw	4
M51	98-37		505412 (9003509-0008)	Seal nut	1
M90	98-37		692889 (9007314-0611)	Screw	6
M96	98-37		011296 (9004105-0120)	O-ring	3
M97	98-37		9004105-0130	O-ring	2
M99	98-37		K08572	Filter assembly	1
QM10	98-37		11013633	EDC3 kit, Packard connector	1
QM210	98-37		11095724	Control seal kit	1

Order code: KM

M9	98-49		MCV116G4213	PCP, Metripak connector	1
M11	98-49		8800923	Control gasket	1
M14	98-49		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	98-49		K07067	Screw	4
M51	98-49		505412 (9003509-0008)	Seal nut	1
M90	98-49		692889 (9007314-0611)	Screw	6
M96	98-49		011296 (9004105-0120)	O-ring	3
M97	98-49		9004105-0130	O-ring	2
M99	98-49		K08572	Filter assembly	1
QM10	98-49		8510241	EDC kit, Metripak connector	1
QM210	98-49		11095724	Control seal kit	1

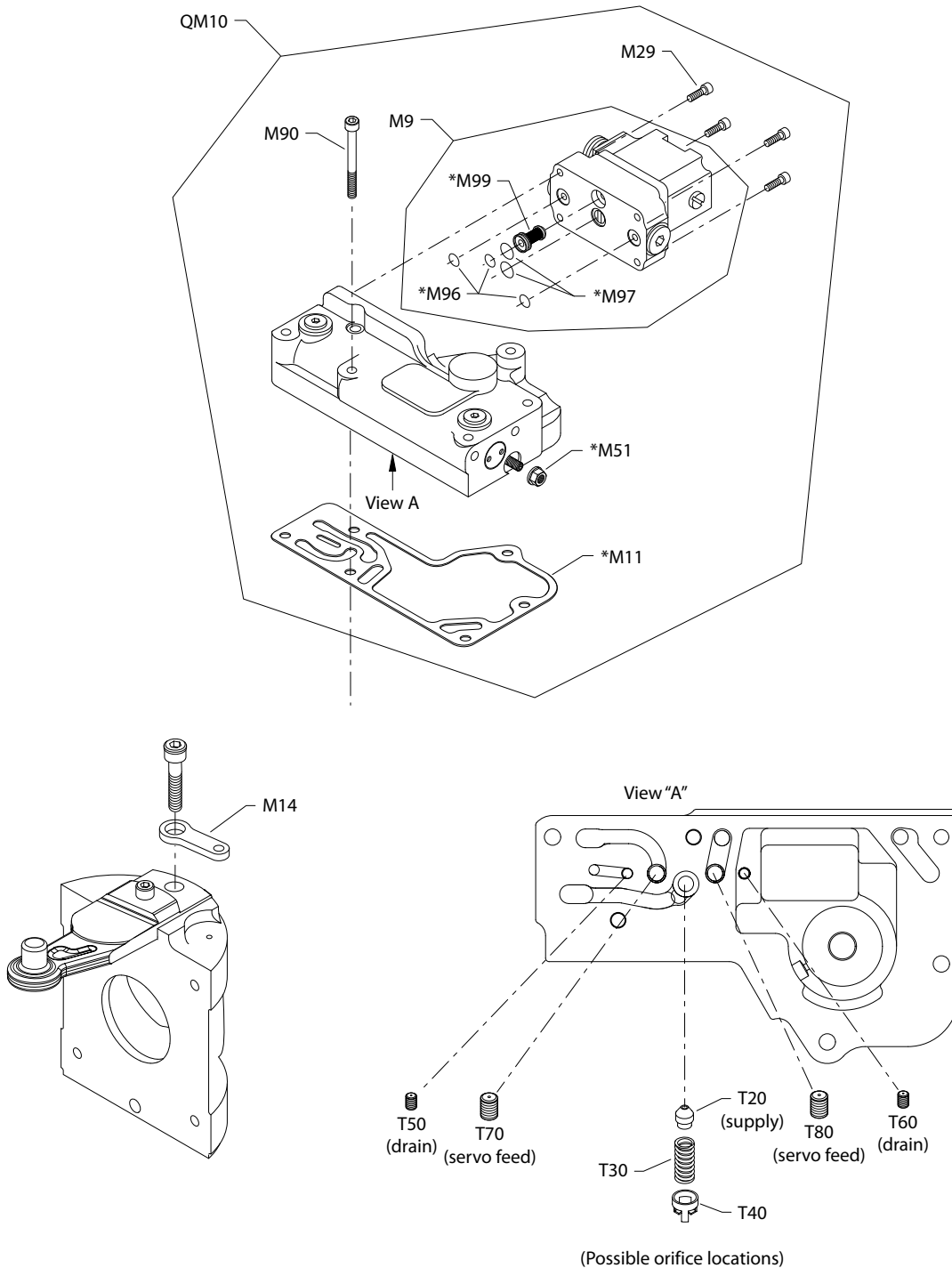
Order code: KN

M9	95-51		MCV116A3501	PCP, MS connector, single coil	1
M11	95-51		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	95-51	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	95-51		K07067	Screw	4
M51	95-51		505412 (9003509-0008)	Seal nut	1
M90	95-51		692889 (9007314-0611)	Screw	6
M96	95-51		011296 (9004105-0120)	O-ring	3
M97	95-51		9004105-0130	O-ring	2
M99	95-51		K08572	Filter assembly	1
QM10	95-51		8510209	EDC3 kit, MS connector, single coil	1
QM210	95-51		11095724	Control seal kit	1

[Parts continue to the next 2 pages.](#)

**Controls**

*Parts configuration*



Generic PCP and swashplate shown.

\* Included in control seal kit QM210



## Controls

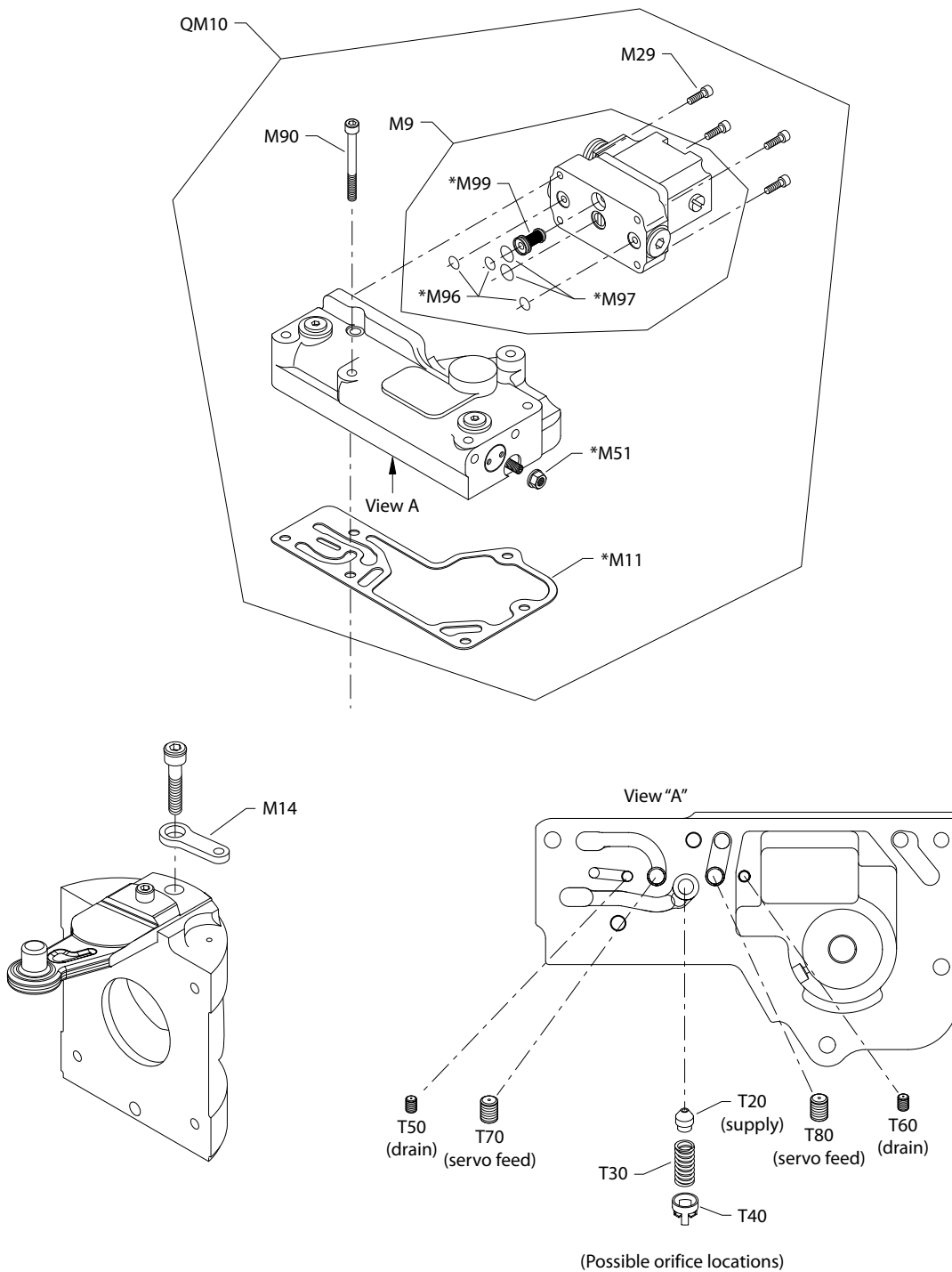
Order code: KP

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	95-26		MCV116G4204	PCP, Weather-pack connector, dual coil	1
M11	95-26		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	95-26	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	95-26		K07067	Screw	4
M51	95-26		505412 (9003509-0008)	Seal nut	1
M90	95-26		692889 (9007314-0611)	Screw	6
M96	95-26		011296 (9004105-0120)	O-ring	3
M97	95-26		9004105-0130	O-ring	2
M99	95-26		K08572	Filter assembly	1
QM10	95-26		8510118	EDC3 kit, Weather-pack connector, dual coil	1
QM210	95-26		11095724	Control seal kit	1

**Controls**

**S90 100cc pump control KT-KW**

*Parts configuration*



Generic PCP and swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: KT

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	99-49		MCV116G4214	PCP, DEUTSCH connector	1
M11	99-49		8800923	Control gasket	1
M14	99-49		11070306	Feedback link	1
M29	99-49		K07067	Screw	4
M51	99-49		505412 (9003509-0008)	Seal nut	1
M90	99-49		692889 (9007314-0611)	Screw	6
M96	99-49		011296 (9004105-0120)	O-ring	3
M97	99-49		9004105-0130	O-ring	2
M99	99-49		K08572	Filter assembly	1
QM10	99-49		8510321	EDC3 kit, DEUTSCH connector	1
QM210	99-49		11095724	Control seal kit	1

Order code: KU

M9	97-50		MCV116G4204	PCP, dual, Weather-Pack connector	1
M11	97-50		8800923	Control gasket	1
M14	97-50		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	97-50		K07067	Screw	4
M51	97-50		505412 (9003509-0008)	Seal nut	1
M90	97-50		692889 (9007314-0611)	Screw	6
M96	97-50		011296 (9004105-0120)	O-ring	3
M97	97-50		9004105-0130	O-ring	2
M99	97-50		K08572	Filter assembly	1
QM10	97-50		11020566	EDC3 kit, dual, Weather-Pack connector	1
QM210	97-50		11095724	Control seal kit	1

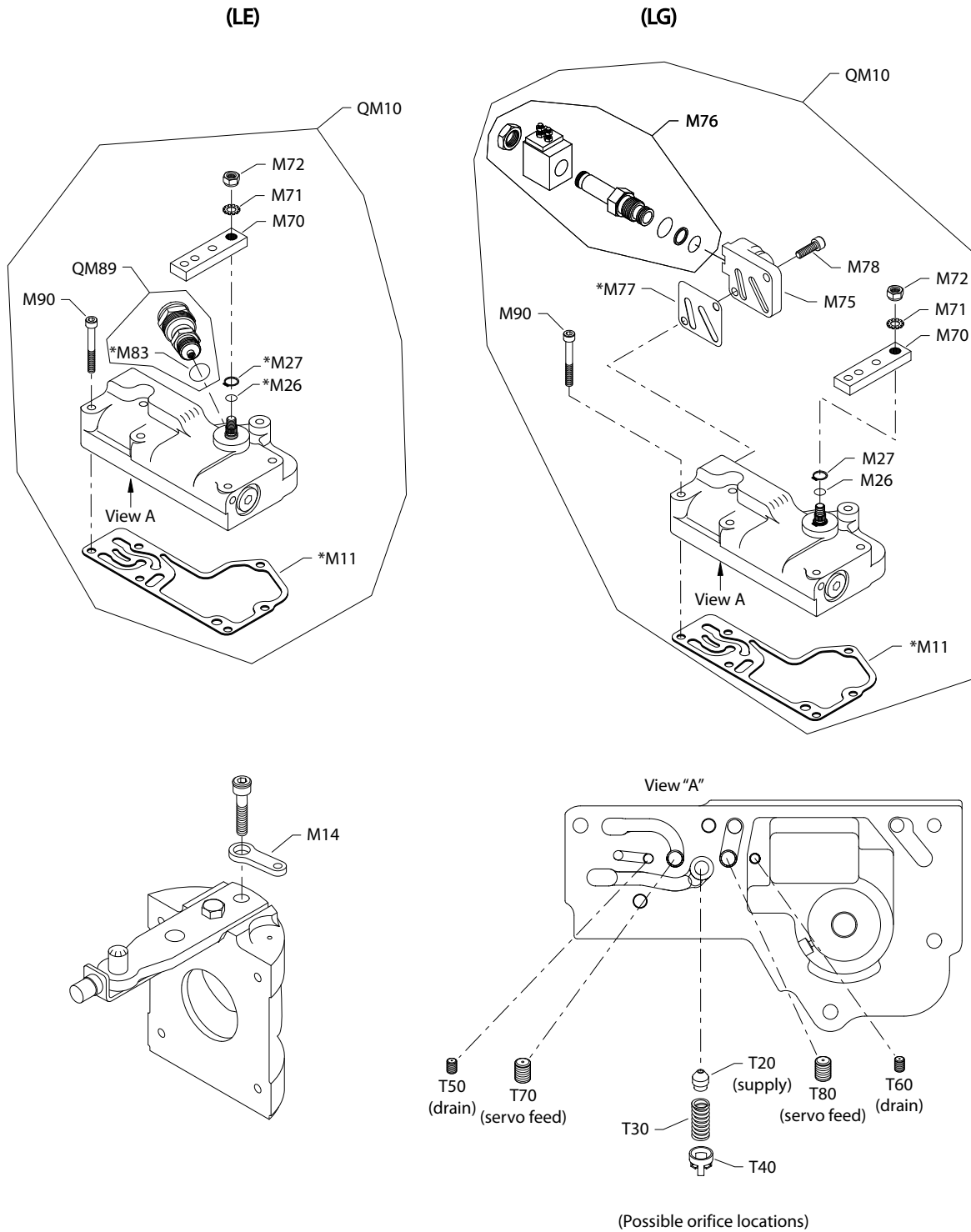
Order code: KW

M9	97-50		MCV116G4201	PCP, MS connector	1
M11	97-50		8800923	Control gasket	1
M14	97-50		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	97-50		K07067	Screw	4
M51	97-50		505412 (9003509-0008)	Seal nut	1
M90	97-50		692889 (9007314-0611)	Screw	6
M96	97-50		011296 (9004105-0120)	O-ring	3
M97	97-50		9004105-0130	O-ring	2
M99	97-50		K08572	Filter assembly	1
QM10	97-50		11099899	EDC3 kit, MS connector	1
QM210	97-50		11095724	Control seal kit	1

**Controls**

**S90 100cc pump control LE, LG**

Parts configuration



\* Included in control seal kit QM210

## Controls

Order code: LE

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	01-07		8800923	Control gasket	1
M14	01-07		11070306	Feedback link	1
M26	01-07		144725 (9004105-0110)	O-ring	1
M27	01-07		042507 (9006300-0044)	Retaining ring	1
M70	01-07		9800916	Control handle	1
M71	01-07		689018 (9009660-3100)	Toothlock washer	1
M72	01-07		040642 (9003513-0800)	Nut	1
M83	01-07		001131 (9004201-5000)	O-ring	1
M90	01-07		692889 (9007314-0611)	Screw	6
QM10	01-07		8510291	MDC kit, high force neutral start switch	1
QM89	01-07		8510316	Neutral start switch kit, high force	1
QM210	01-07		11100031	Control seal kit	1

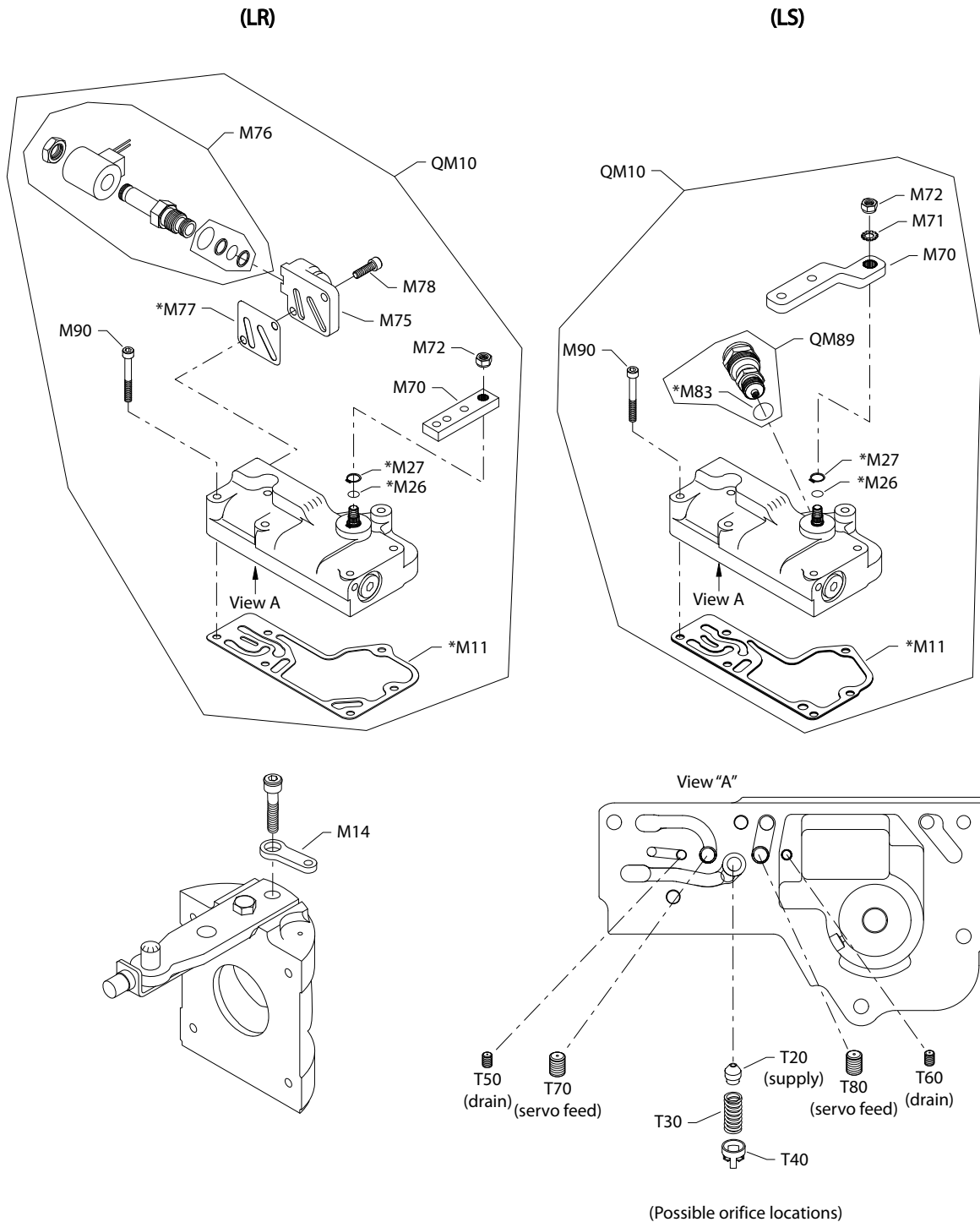
Order code: LG

M11	98-42		8800923	Control gasket	1
M14	98-42		11070306	Feedback link	1
M26	98-42		144725 (9004105-0110)	O-ring	1
M27	98-42		042507 (9006300-0044)	Retaining ring	1
M70	98-42		9800916	Control handle	1
M71	98-42		689018 (9009660-3100)	Toothlock washer	1
M72	98-42		040642 (9003513-0800)	Nut	1
M75	98-42		505022	Control manifold	1
M76	98-42		11127986	Solenoid valve assembly, 2-pole, 12 volt	1
M77	98-42		8800882	Manifold gasket	1
M78	98-42		693341 (9007314-0606)	Screw	2
M90	98-42		692889 (9007314-0611)	Screw	6
QM10	98-42		11015108	MDC kit, 2-pole, 12 volt	1
QM210	98-42		11100031	Control seal kit	1

**Controls**

**S90 100cc pump control LR, LS**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

## Controls

\* Included in control seal kit QM210

Order code: LR

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	04-50		8800923	Control gasket	1
M14	04-50		11070306	Feedback link	1
M26	04-50		144725 (9004105-0110)	O-ring	1
M27	04-50		042507 (9006300-0044)	Retaining ring	1
M70	04-50		9800916	Control handle	1
M72	04-50		040642 (9003513-0800)	Nut	1
M75	04-50		505022	Control manifold	1
M76	04-50		521242	Solenoid valve, 12 volt, 2-pole	1
M77	04-50		8800882	Manifold gasket	1
M78	04-50		693341 (9007314-0606)	Screw	2
M90	04-50		692889 (9007314-0611)	Screw	6
QM10	04-50		8510376	MDC kit, w/2-pole 12v solenoid	1
QM210	04-50		11099998	Control seal kit	1

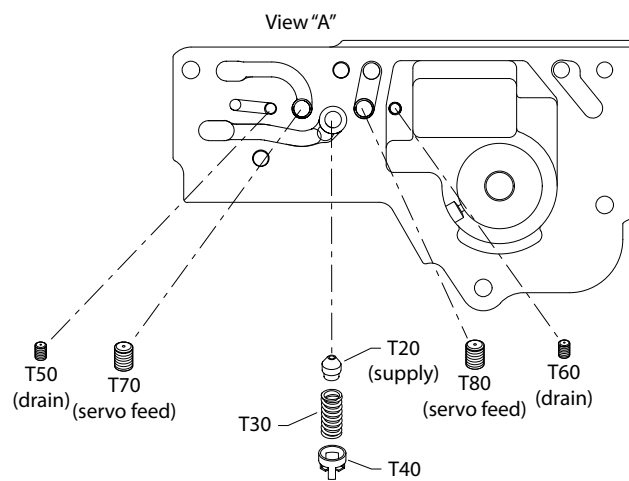
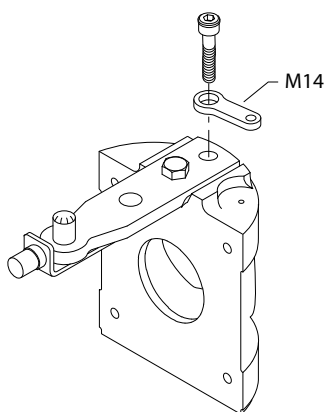
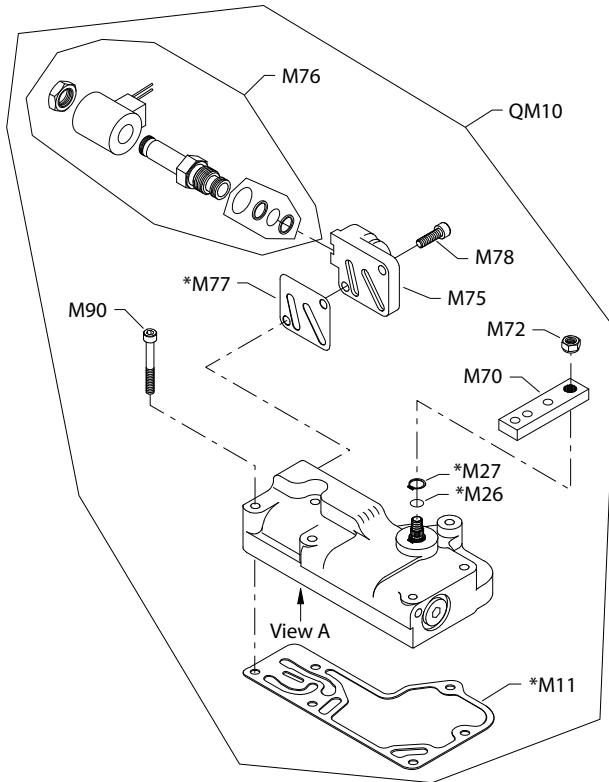
Order code: LS

M11	04-46		8800923	Control gasket	1
M14	04-46		11070306	Feedback link	1
M26	04-46		144725 (9004105-0110)	O-ring	1
M27	04-46		042507 (9006300-0044)	Retaining ring	1
M70	04-46		8801339	Control handle, offset	1
M71	04-46		689018 (9009660-3100)	Toothlock washer	1
M72	04-46		040642 (9003513-0800)	Nut	1
M83	04-46		001131 (9004201-5000)	O-ring	1
M90	04-46		692889 (9007314-0611)	Screw	6
QM10	04-46		8510360	MDC kit, with high force neutral start switch	1
QM89	04-46		8510316	Neutral start switch kit, high force, Weather-pack	1
QM210	04-46		11096274	Control seal kit	1

**Controls**

**S90 100cc pump control LW**

*Parts configuration*



(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.



## Controls

\* Included in control seal kit QM210

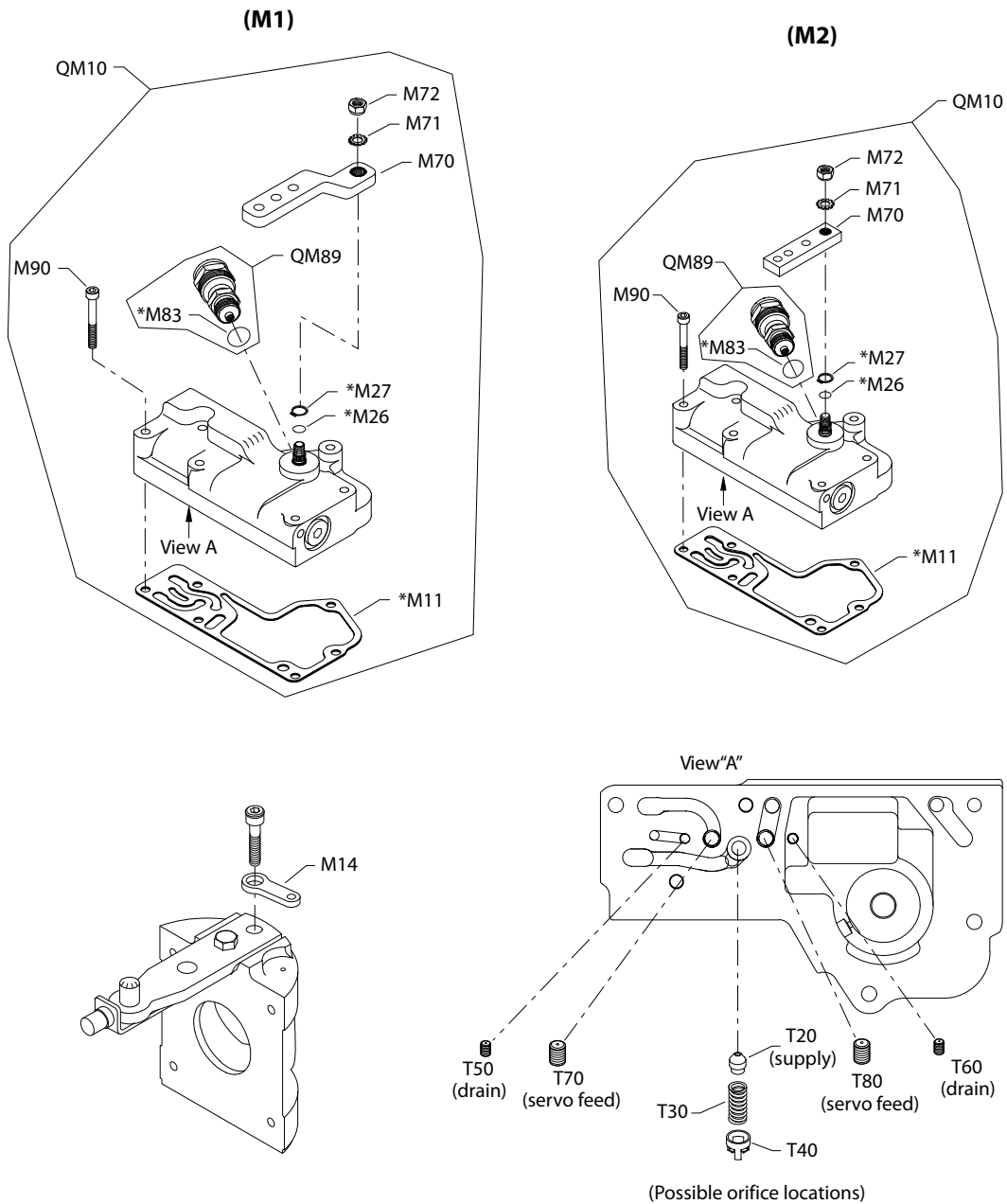
Order code: LW

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	12-03		8800923	Control gasket	1
M14	12-03		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M26	12-03		144725 (9004105-0110)	O-ring	1
M27	12-03		042507	Retaining ring	1
M28	12-03		510690	Seal	1
M70	12-03		9800916	Control handle	1
M72	12-03		040642 (9003513-0800)	Nut	1
M90	12-03		692889 (9007314-0611)	Screw	6
QM10	12-03		11107925	MDC kit, 2-position solenoid valve, 24v	1
QM210	12-03		11110668	Control seal kit	1

**Controls**

**S90P control M1, M2**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: M1

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	95-37		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	95-37	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	95-37		144725 (9004105-0110)	O-ring	1
M27	95-37		042507 (9006300-0044)	Retaining ring	1
M70	95-37		9800916	Control handle	1
M71	95-37		689018 (9009660-3100)	Toothlock washer	1
M72	95-37		040642 (9003513-0800)	Nut	1
M90	95-37		692889 (9007314-0611)	Screw	6
QM10	95-37		11014378	MDC kit, brass sleeve	1
QM210	95-37		11096274	Control seal kit	1

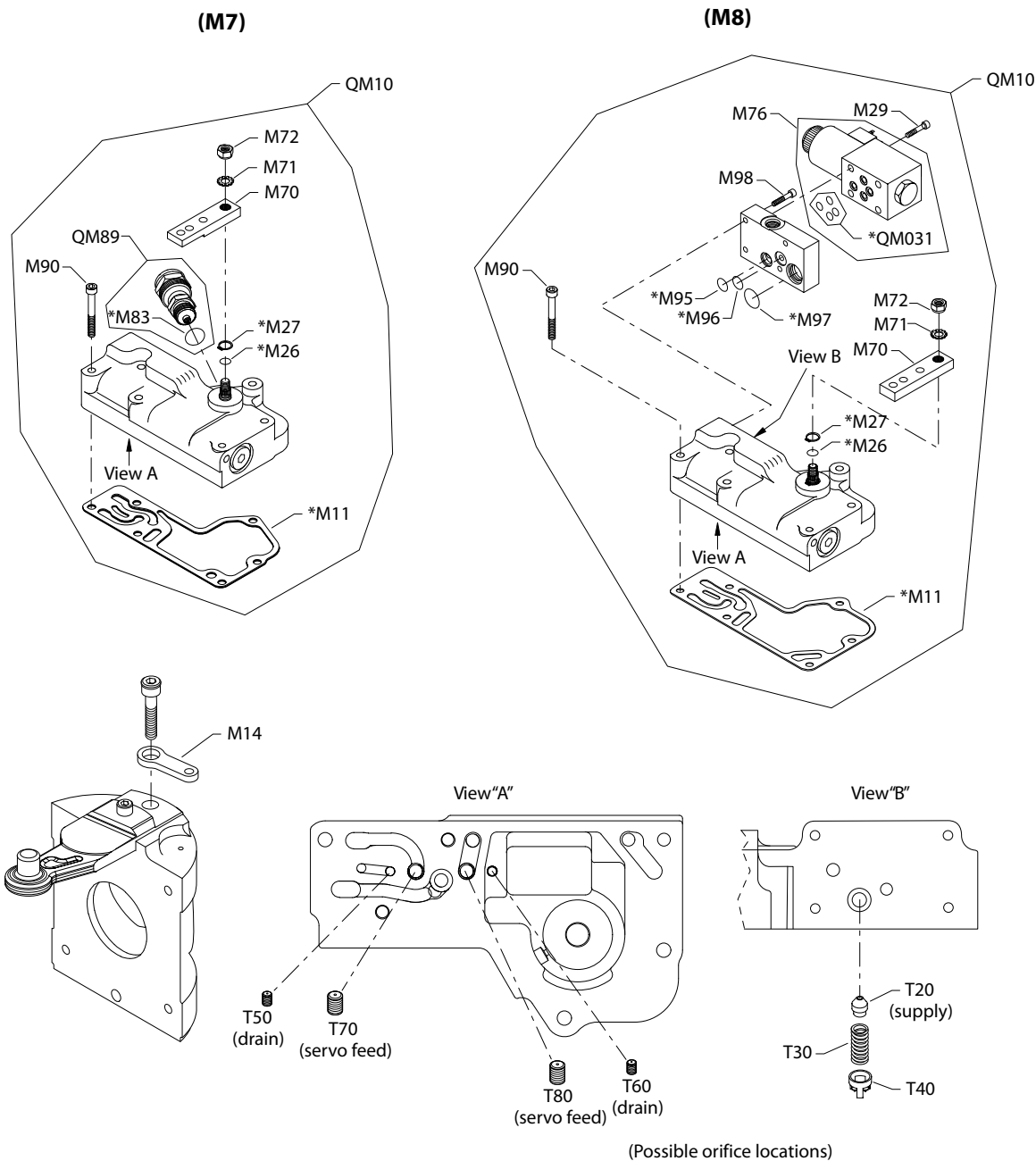
Order code: M2

M11	95-37		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	95-37	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	95-37		144725 (9004105-0110)	O-ring	1
M27	95-37		042507 (9006300-0044)	Retaining ring	1
M70	95-37		9800916	Control handle	1
M71	95-37		689018 (9009660-3100)	Toothlock washer	1
M72	95-37		040642 (9003513-0800)	Nut	1
M83	95-37		001131 (9004201-5000)	O-ring	1
M90	95-37		692889 (9007314-0611)	Screw	6
QM10	95-37		8510112	MDC kit, with neutral start switch, brass sleeve	1
QM89	95-37		80020S40	Neutral start switch kit	1
QM210	95-37		11096274	Control seal kit	1

**Controls**

**S90P control M7, M8**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: M7

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	11-04		8800923	Control gasket	1
M14	11-04		11070306	Feedback link (SB-2013-011 on page 324)	1
M26	11-04		144725 (9004105-0110)	O-ring	1
M27	11-04		042507 (9006300-0044)	Retaining ring	1
M70	11-04		8801260	Control handle	1
M71	11-04		689018 (9009660-3100)	Toothlock washer	1
M72	11-04		040642 (9003513-0800)	Nut	1
M83	11-04		001131 (9004201-5000)	O-ring	1
M90	11-04		692889 (9007314-0611)	Screw	6
QM10	11-04		11099070	MDC kit, with neutral start switch	1
QM89	11-04		709014 (8510170)	Neutral start switch kit	1
QM210	11-04		11096274	Control seal kit	1

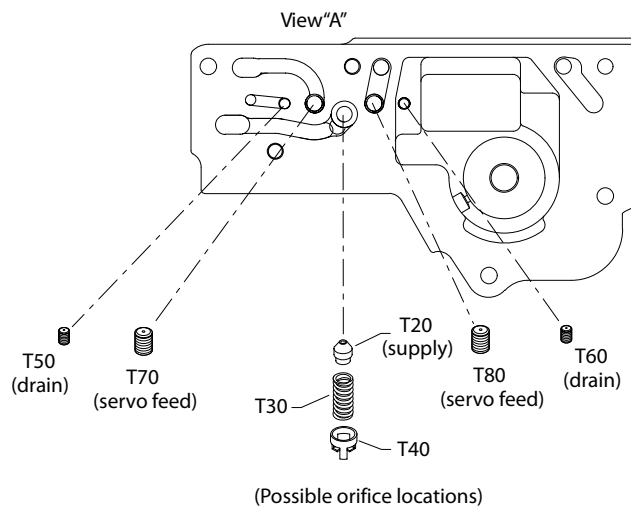
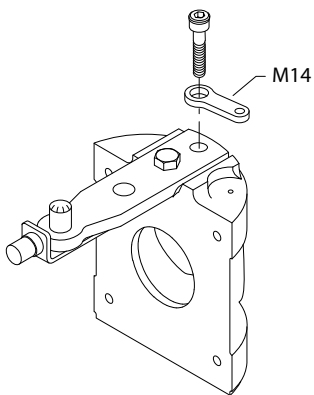
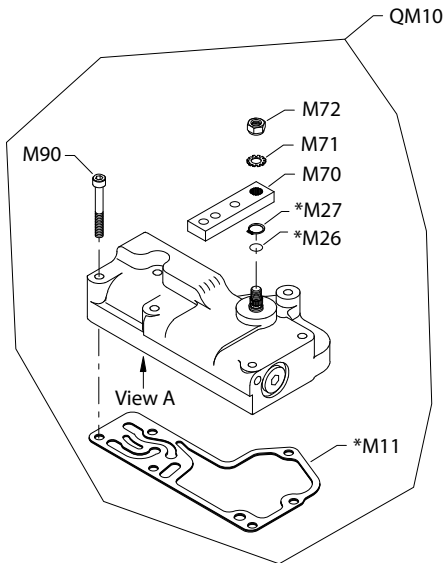
Order code: M8

M11	04-38		8800923	Control gasket	1
M14	04-38		11070306	Feedback link	1
M26	04-38		144725 (9004105-0110)	O-ring	1
M27	04-38		042507 (9006300-0044)	Retaining ring	1
M29	04-38		9007315-0507	Screw	4
M70	04-38		9800916	Control handle	1
M71	04-38		689018 (9009660-3100)	Toothlock washer	1
M72	04-38		040642 (9003513-0800)	Nut	1
M76	04-38		508009	Solenoid valve	1
M90	04-38		692889 (9007314-0611)	Screw	6
M95	04-38		9004105-0140	O-ring	1
M96	04-38		9004105-0140	O-ring	1
M97	04-38		9004105-0190	O-ring	1
M98	04-38		9007315-0505	Screw	4
QM10	04-38		11015110	MDC kit, w/2-position solenoid valve	1
QM031	04-38		11099647	Solenoid seal kit	1
QM210	04-38		11099978	Control seal kit	1

**Controls**

**S90P control M9**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

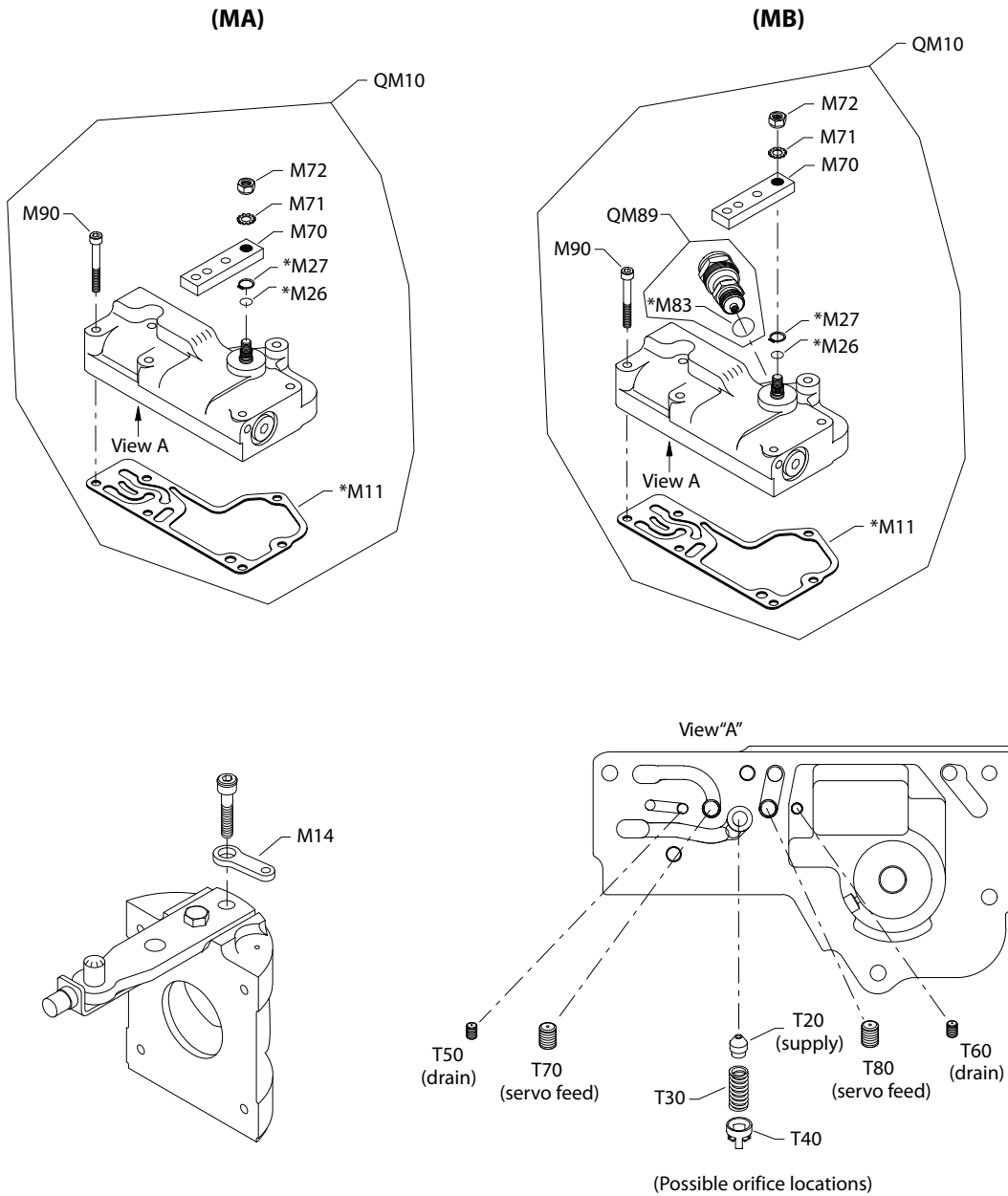
Order code: M9

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	91-07		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	91-07	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	91-07		144725 (9004105-0110)	O-ring	1
M27	91-07		042507 (9006300-0044)	Retaining ring	1
M70	91-07		9800916	Control handle	1
M71	91-07		689018 (9009660-3100)	Toothlock washer	1
M72	91-07		040642 (9003513-0800)	Nut	1
M90	91-07		692889 (9007314-0611)	Screw	6
QM10	91-07		8510288	MDC kit	1
QM210	91-07		11096274	Control seal kit	1

**Controls**

**S90P control MA, MB**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210



## Controls

Order code: MA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507 (9006300-0044)	Retaining ring	1
M70	87-02		9800916	Control handle	1
M71	87-02		689018 (9009660-3100)	Toothlock washer	1
M72	87-02		040642 (9003513-0800)	Nut	1
M90	87-02		692889 (9007314-0611)	Screw	6
QM10	87-02		8102M0MA-A	MDC kit	1
QM210	87-02		11096274	Control seal kit	1

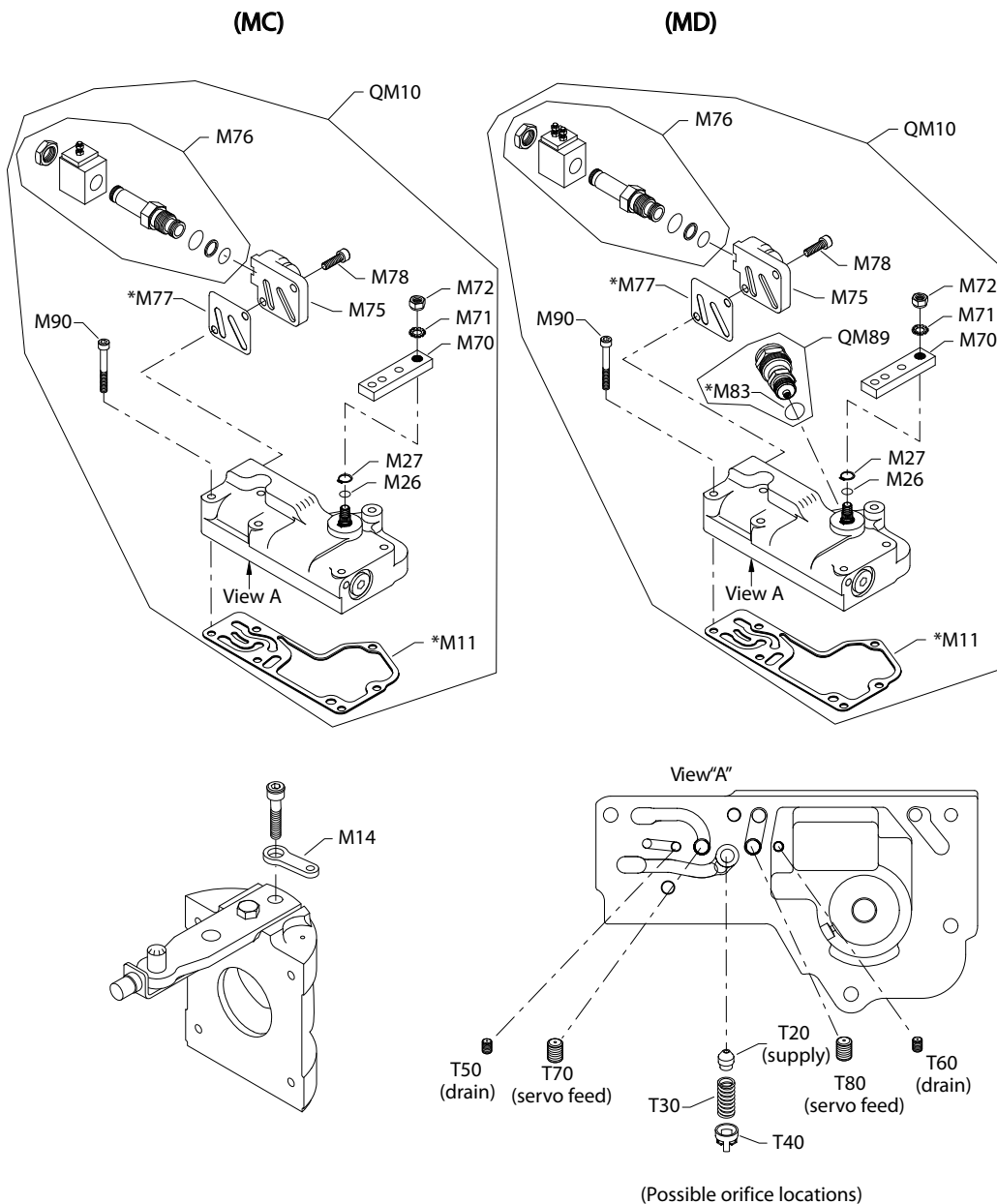
Order code: MB

M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507 (9006300-0044)	Retaining ring	1
M70	87-02		9800916	Control handle	1
M71	87-02		689018 (9009660-3100)	Toothlock washer	1
M72	87-02		040642 (9003513-0800)	Nut	1
M83	87-02		001131 (9004201-5000)	O-ring	1
M90	87-02		692889 (9007314-0611)	Screw	6
QM10	87-02		8102M0MB-A	MDC kit with neutral start switch	1
QM89	87-02		80020S40	Neutral start switch kit	1
QM210	87-02		11096274	Control seal kit	1

**Controls**

**S90P control MC, MD**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: MC

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507 (9006300-0044)	Retaining ring	1
M70	87-02		9800916	Control handle	1
M71	87-02		689018 (9009660-3100)	Toothlock washer	1
M72	87-02		040642 (9003513-0800)	Nut	1
M75	87-02		505022	Control manifold ( <a href="#">SB-1995-003</a> on page 284)	1
M76	87-02		11127987	Solenoid valve, 12 volt, single pole	1
M77	87-02		8800882	Manifold gasket	1
M78	95-10		693341 (9007314-0606)	Screw ( <a href="#">SB-1995-003</a> on page 284)	2
M78	87-02	95-09	041160 (9007314-0605)	Screw	2
M90	87-02		692889 (9007314-0611)	Screw	6
QM10	87-02		8102M0MC-A	MDC kit w/12 volt solenoid, single pole	1
QM210	87-02		11100031	Control seal kit	1

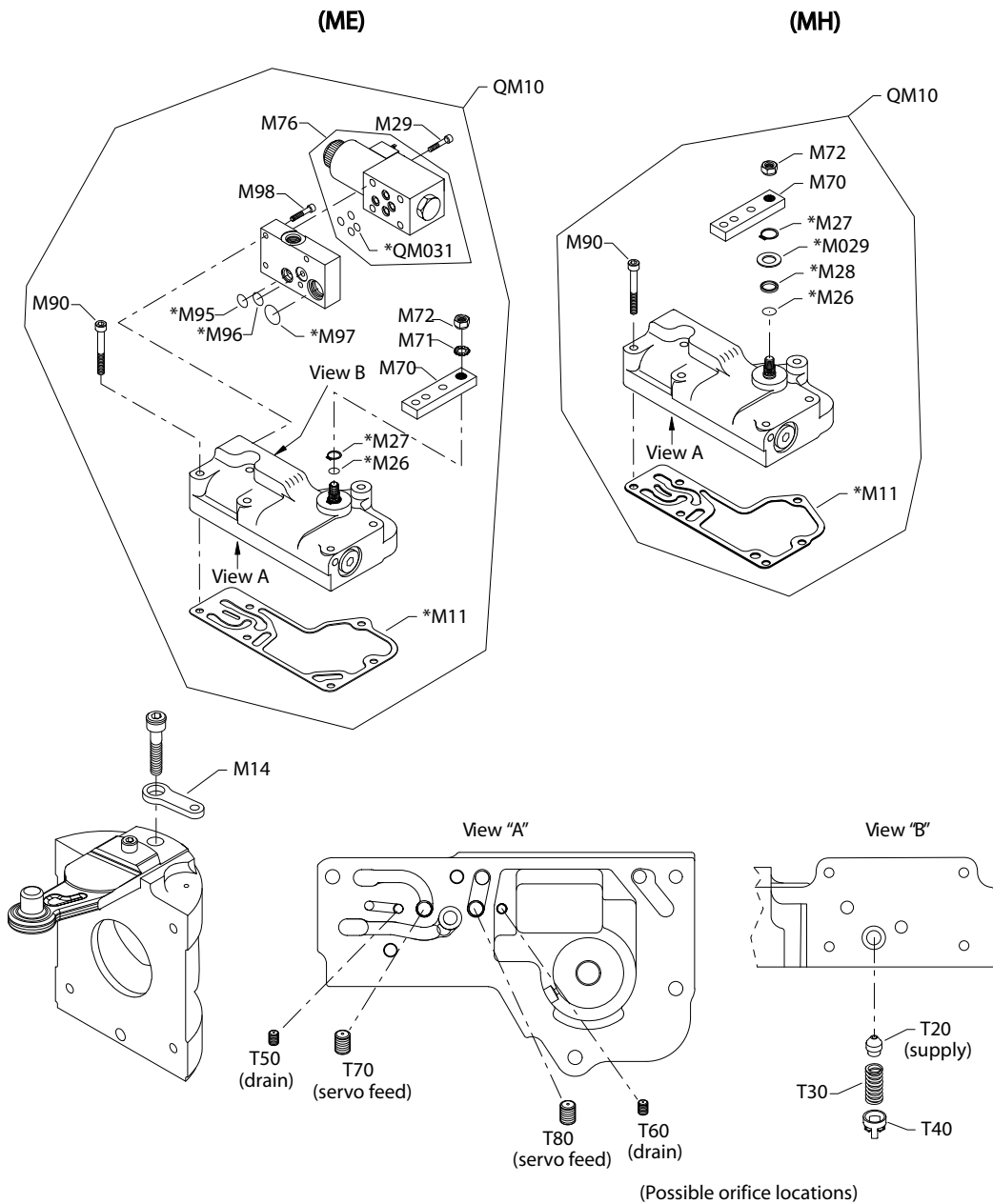
Order code: MD

M11	02-16		8800923	Control gasket	1
M14	02-16		11070306	Feedback link	1
M26	02-16		144725 (9004105-0110)	O-ring	1
M27	02-16		042507 (9006300-0044)	Retaining ring	1
M70	02-16		9800916	Control handle	1
M71	02-16		689018 (9009660-3100)	Toothlock washer	1
M72	02-16		040642 (9003513-0800)	Nut	1
M75	02-16		505022	Control manifold	1
M76	02-16		11127986	Solenoid valve, 12v, double pole	1
M77	02-16		8800882	Manifold gasket	1
M78	02-16		693341 (9007314-0606)	Screw	2
M83	02-16		001131 (9004201-5000)	O-ring	1
M90	02-16		692889 (9007314-0611)	Screw	6
QM10	02-16		8102M0MD-A	MDC kit, w/double pole 12v solenoid	1
QM89	02-16		8510027	Neutral start switch kit, high force, Weather-pack	1
QM210	02-16		11100031	Control seal kit	1

**Controls**

**S90 100cc pump control ME, MH**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: ME

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507 (9006300-0044)	Retaining ring	1
M29	87-02		9007315-0510	Screw	4
M70	87-02		9800916	Control handle	1
M71	87-02		689018 (9009660-3100)	Toothlock washer	1
M72	87-02		040642 (9003513-0800)	Nut	1
M76	87-02		519357	Solenoid valve, 12 volt	1
M90	87-02		692889 (9007314-0611)	Screw	6
M95	87-02		056713 (9004105-0140)	O-ring	1
M96	87-02		056713 (9004105-0140)	O-ring	1
M97	87-02		544742 (9004105-0190)	O-ring	1
M98	87-02		9007315-0505	Screw	4
QM10	87-02		8102M0ME-A	MDC kit w/2-position solenoid valve, 12 volt	1
QM031	87-02		11099647	Solenoid seal kit	1
QM210	87-02		11099978	Control seal kit	1

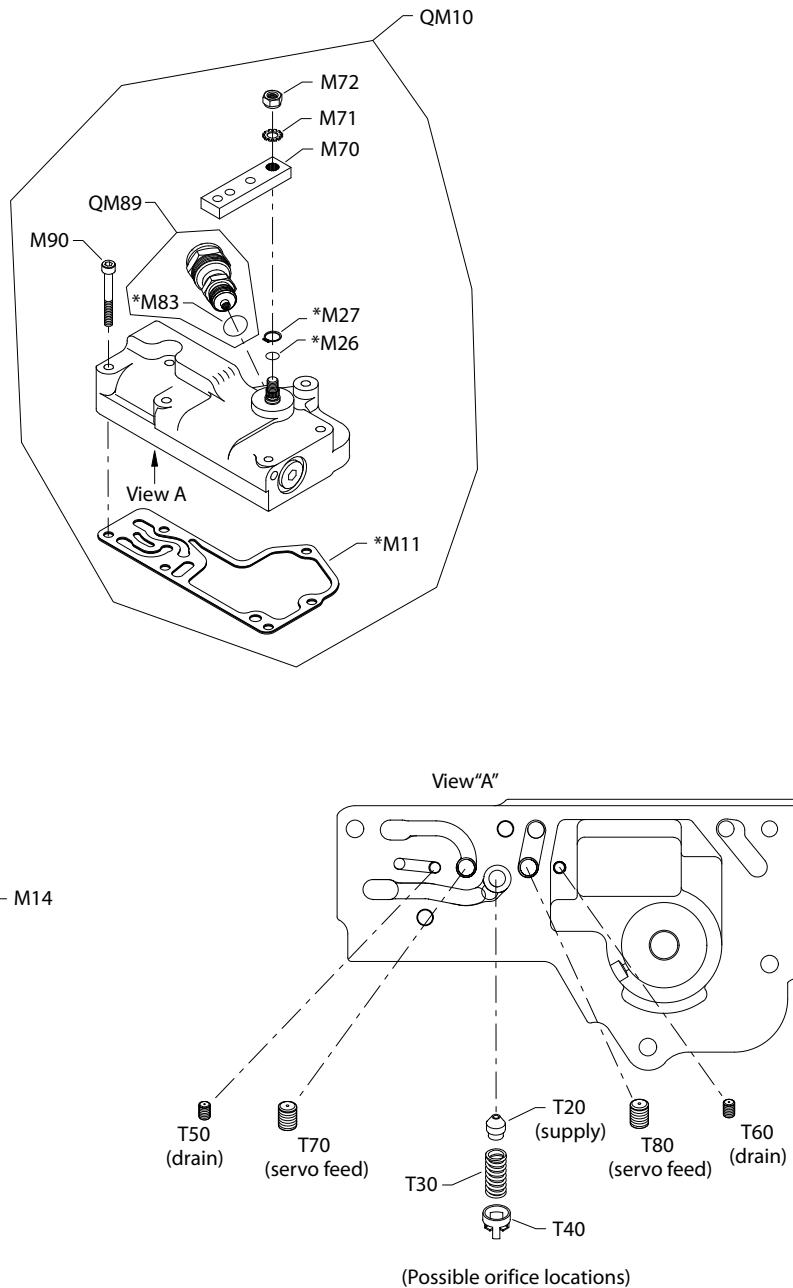
Order code: MH

M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507	Retaining ring	1
M28	87-02		510690	Shaft seal	1
M70	87-02		9800916	Control handle	1
M72	87-02		040642 (9003513-0800)	Nut	1
M90	87-02		692889 (9007314-0611)	Screw	6
QM10	87-02		8510282	MDC kit	1
QM210	87-02		11096274	Control seal kit	1

**Controls**

**S90P control MK, ML**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: MK

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507 (9006300-0044)	Retaining ring	1
M70	87-02		9800916	Control handle	1
M71	87-02		689018 (9009660-3100)	Toothlock washer	1
M72	87-02		040642 (9003513-0800)	Nut	1
M83	87-02		001131 (9004201-5000)	O-ring	1
M90	87-02		692889 (9007314-0611)	Screw	6
QM10	87-02		8102M0MK-A	MDC kit w/wide deadband, nss	1
QM89	87-02		80020S40	Neutral start switch kit	1
QM210	87-02		11096274	Control seal kit	1

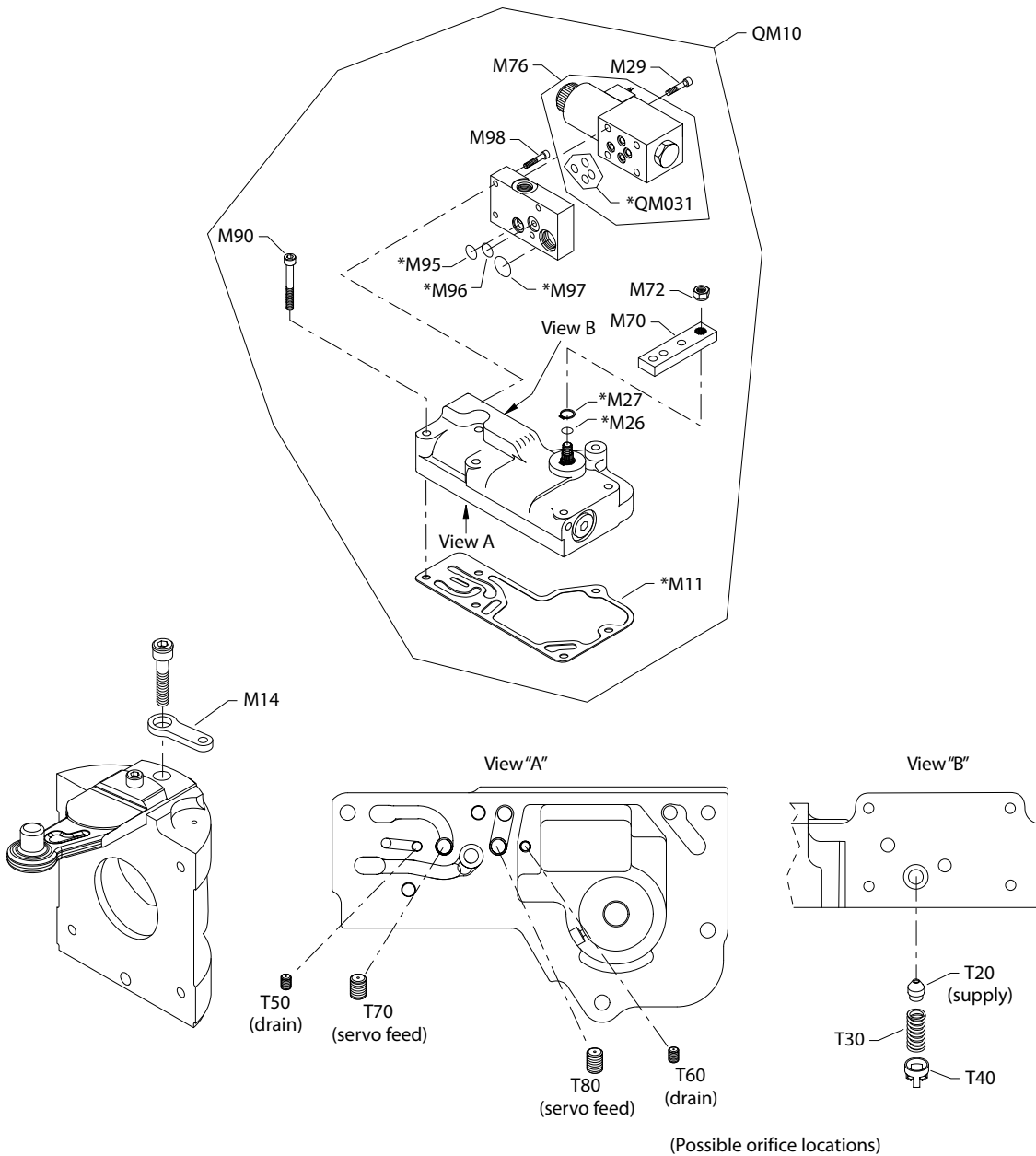
Order code: ML

M11	87-02		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	87-02	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	87-02		144725 (9004105-0110)	O-ring	1
M27	87-02		042507 (9006300-0044)	Retaining ring	1
M70	87-02		9800916	Control handle	1
M71	87-02		689018 (9009660-3100)	Toothlock washer	1
M72	87-02		040642 (9003513-0800)	Nut	1
M83	87-02		001131 (9004201-5000)	O-ring	1
M90	87-02		692889 (9007314-0611)	Screw	6
QM10	87-02		11015112	MDC kit w/wide deadband, high force nss	1
QM89	87-02		8510027	Neutral start switch kit, high force	1
QM210	87-02		11096274	Control seal kit	1

**Controls**

**S90P control MN**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210



## Controls

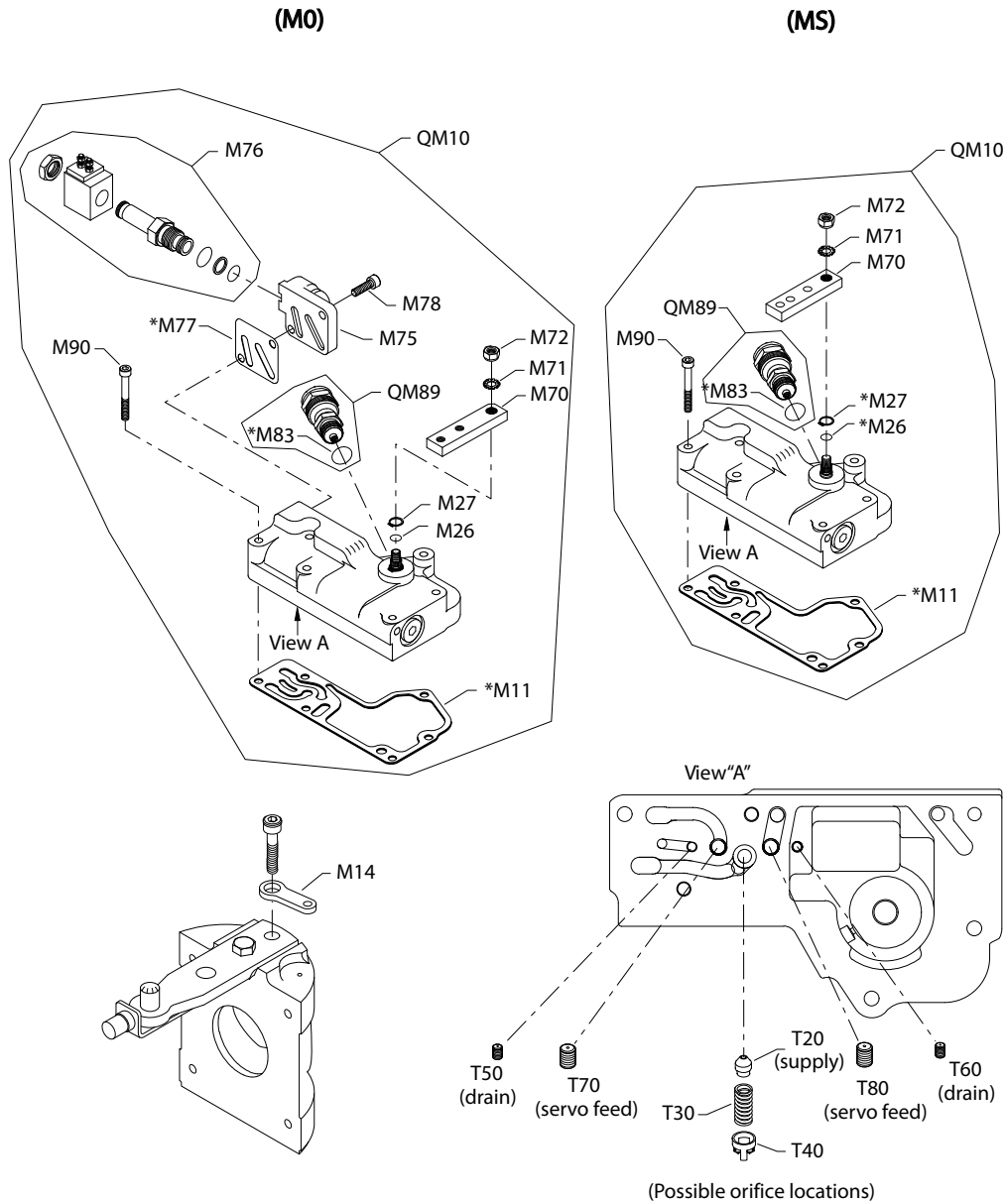
Order code: MN

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	94-02		8800923	Control gasket	1
M14	94-02		11070306	Feedback link	1
M26	94-02		144725 (9004105-0110)	O-ring	1
M27	94-02		042507 (9006300-0044)	Retaining ring	1
M29	94-02		035592	Screw, M5 x 45	4
M70	94-02		9800916	Control handle	1
M72	94-02		040642 (9003513-0800)	Nut	1
M76	94-02		519357	Solenoid valve, 12 volt	1
M90	94-02		692889 (9007314-0611)	Screw	6
M95	94-02		056713	O-ring	1
M96	94-02		056713	O-ring	1
M97	94-02		544742	O-ring	1
M98	94-02		067686	Screw, M5 x 20	4
QM10	94-02		11087557	MDC kit w/2-position solenoid	1
QM031	94-02		11099647	Solenoid valve seal kit	1
QM210	94-02		11099978	Control seal kit	1

**Controls**

**S90 100cc pump control MO, MS**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate and neutral start switch shown.

## Controls

Order code: MO

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	96-24		8800923	Control gasket	1
M14	96-24		11070306	Feedback link	1
M26	96-24		144725 (9004105-0110)	O-ring	1
M27	96-24		042507 (9006300-0044)	Retaining ring	1
M70	96-24		9800916	Control handle	1
M71	96-24		689018 (9009660-3100)	Toothlock washer	1
M72	96-24		040642 (9003513-0800)	Nut	1
M78	96-24		090159	Screw	4
M90	96-24		692889 (9007314-0611)	Screw	6
M95	96-24		011304 (9004104-0140)	O-ring	3
QM10	96-24		11087558	MDC kit, reduce valve	1
QM210	96-24		11099981	Control seal kit	1

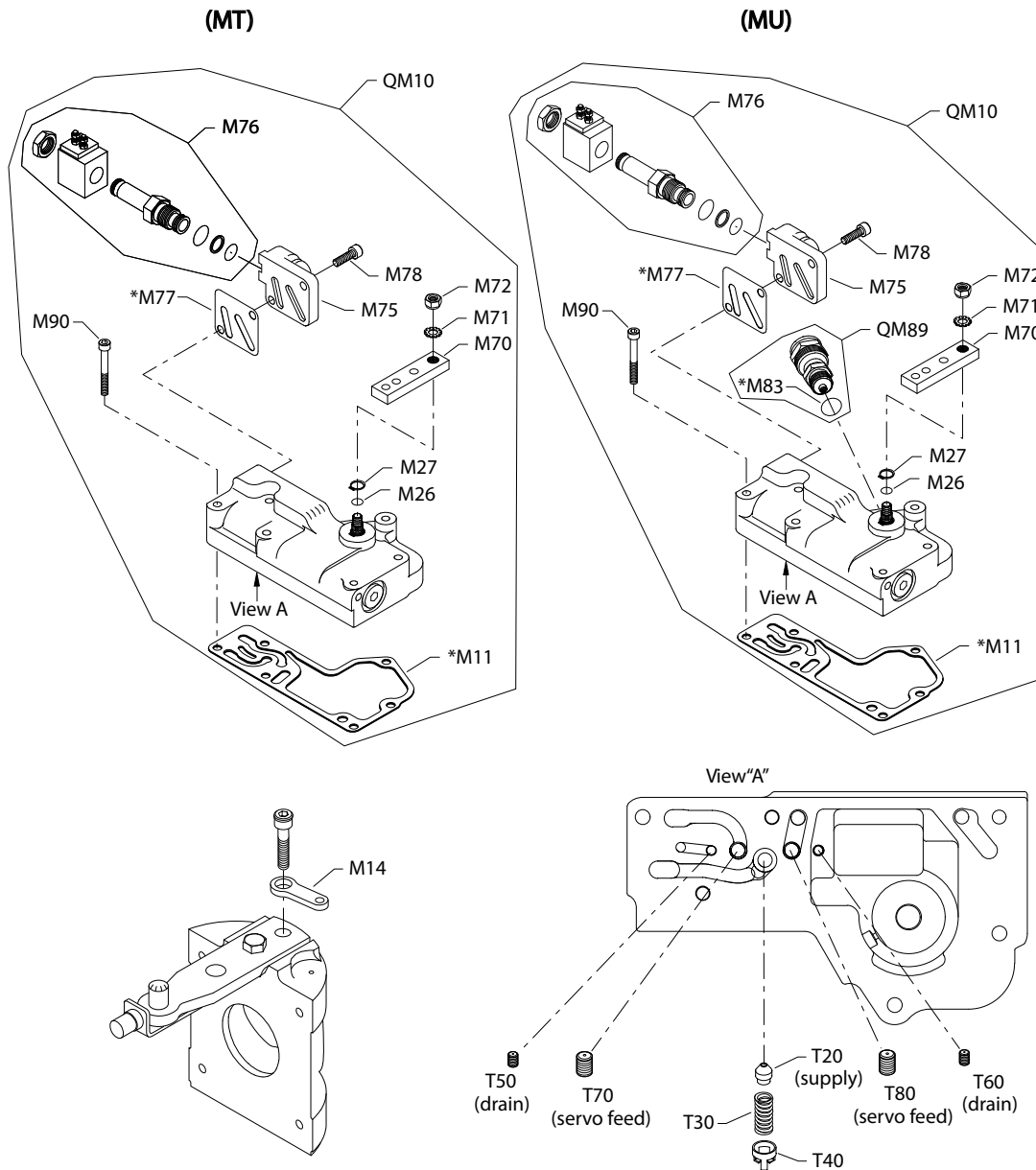
Order code: MS

M11	01-07		8800923	Control gasket	1
M14	01-07		11070306	Feedback link	1
M26	01-07		144725 (9004105-0110)	O-ring	1
M27	01-07		042507 (9006300-0044)	Retaining ring	1
M70	01-07		9800916	Control handle	1
M71	01-07		689018 (9009660-3100)	Toothlock washer	1
M72	01-07		040642 (9003513-0800)	Nut	1
M83	01-07		001131 (9004201-5000)	O-ring	1
M90	01-07		692889 (9007314-0611)	Screw	6
QM10	01-07		8510287	MDC kit, high force neutral start switch	1
QM89	01-07		8510027	Neutral start switch kit, high force	1
QM210	01-07		11096274	Control seal kit	1

**Controls**

**S90 100cc pump control MT, MU**

Parts configuration



(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: MT

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	01-01		8800923	Control gasket	1
M14	01-01		11070306	Feedback link	1
M26	01-01		144725 (9004105-0110)	O-ring	1
M27	01-01		042507 (9006300-0044)	Retaining ring	1
M70	01-01		9800916	Control handle	1
M71	01-01		689018 (9009660-3100)	Toothlock washer	1
M72	01-01		040642 (9003513-0800)	Nut	1
M75	01-01		505022	Control manifold	1
M76	01-01		11127986	Solenoid valve, 12 volt, 2-pole	1
M77	01-01		8800882	Manifold gasket	1
M78	01-01		693341 (9007314-0606)	Screw	2
M90	01-01		692889 (9007314-0611)	Screw	6
QM10	01-01		8510320	MDC kit, w/2-pole 12v solenoid	1
QM210	01-01		11100031	Control seal kit	1

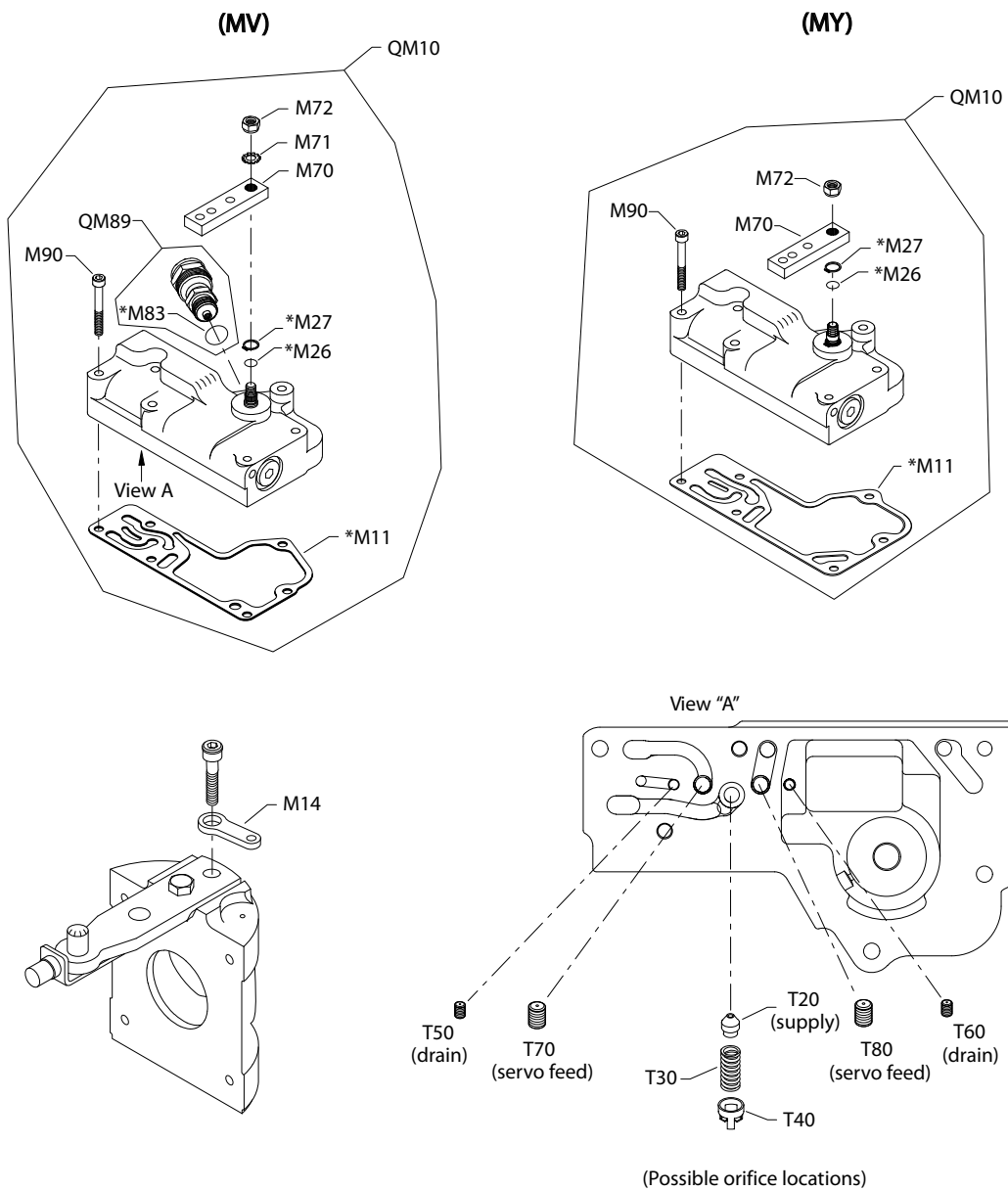
Order code: MU

M11	94-05	14-33	8800923	Control gasket	1
M14	96-40	14-33	11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-05	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	94-05	14-33	144725 (9004105-0110)	O-ring	1
M27	94-05	14-33	042507 (9006300-0044)	Retaining ring	1
M70	94-05	14-33	9800916	Control handle	1
M71	94-05	14-33	689018 (9009660-3100)	Toothlock washer	1
M72	94-05	14-33	040642 (9003513-0800)	Nut	1
M75	94-05	14-33	505022	Control manifold	1
M76	94-05	14-33	11127986	Solenoid valve, 12v, double pole	1
M77	94-05	14-33	8800882	Manifold gasket	1
M78	94-05	14-33	693341 (9007314-0606)	Screw	2
M83	94-05	14-33	001131 (9004201-5000)	O-ring	1
M90	94-05	14-33	692889 (9007314-0611)	Screw	6
QM10	94-05	14-33	11019664	MDC kit, w/double pole 12v solenoid	1
QM89	94-05	14-33	8510170	Neutral start switch kit	1
QM210	94-05	14-33	11100031	Control seal kit	1

**Controls**

**S90 100cc pump control MV, MY**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

\* Included in control seal kit QM210

## Controls

Order code: MV

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	94-30		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-30	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M70	94-30		9800916	Control handle	1
M71	94-30		689018 (9009660-3100)	Toothlock washer	1
M72	94-30		040642 (9003513-0800)	Nut	1
M83	94-30		001131 (9004201-5000)	O-ring	1
M90	94-30		692889 (9007314-0611)	Screw	6
QM10	94-30		8510342	MDC kit, nss w/weather pack connector, 2-way	1
QM89	94-30		8510170	Neutral start switch kit, weather pack connector, 2-way	1
QM210	94-30		11096274	Control seal kit	1

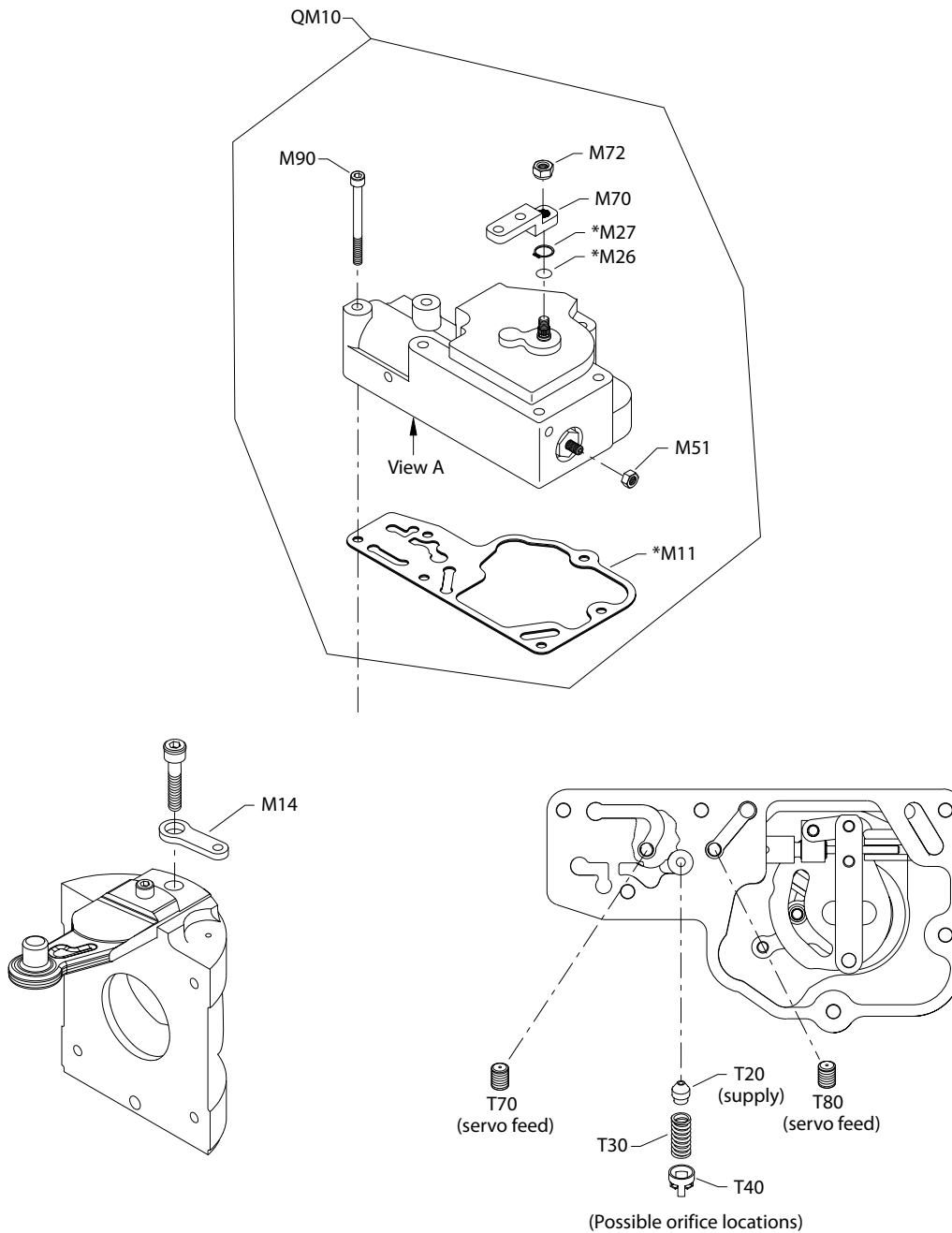
Order code: MV

M11	94-30		8800923	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-30	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M70	94-30		9800916	Control handle	1
M71	94-30		689018 (9009660-3100)	Toothlock washer	1
M72	94-30		040642 (9003513-0800)	Nut	1
M83	94-30		001131 (9004201-5000)	O-ring	1
M90	94-30		692889 (9007314-0611)	Screw	6
QM10	94-30		8510342	MDC kit, nss w/weather pack connector, 2-way	1
QM89	94-30		8510170	Neutral start switch kit, weather pack connector, 2-way	1
QM210	94-30		11096274	Control seal kit	1

**Controls**

**S90 100cc pump control NA**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

\* Included in control seal kit QM210



## Controls

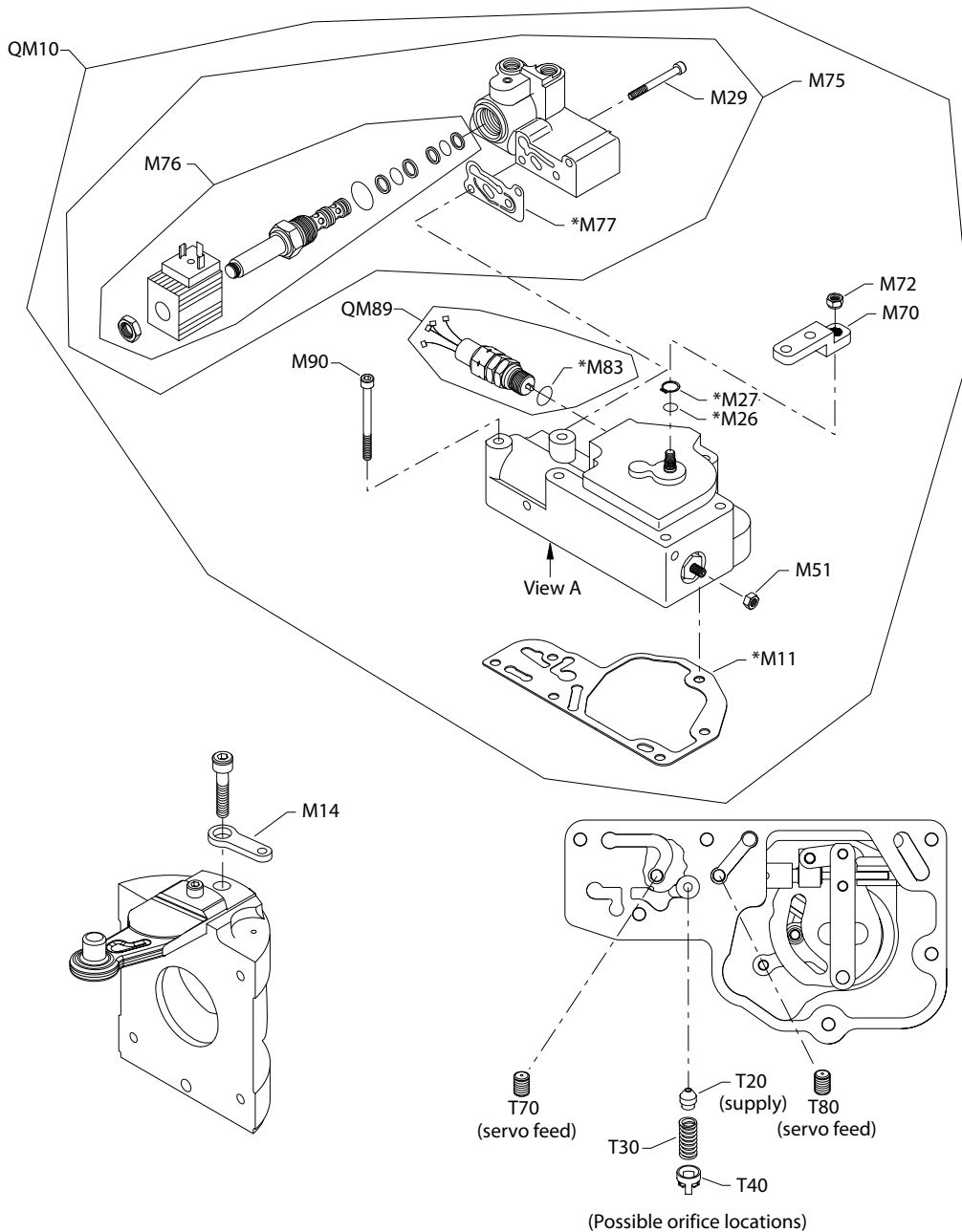
Order code: NA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	94-30		504733	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-30	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	94-30		144725 (9004105-0110)	O-ring	1
M27	94-30		9006300-0044	Retaining ring	1
M51	94-30		345462	Nut	1
M70	94-30		769075	Control handle, sharp bend	1
M71	94-30		689018 (9009660-3100)	Toothlock washer	1
M72	94-30		040642 (9003513-0800)	Nut	1
M90	94-30		9007314-0614	Screw	6
QM10	94-30		8102M0NA-A	MDC kit, NL	1
QM210	94-30		11096273	Control seal kit	1

**Controls**

**S90P control NU**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

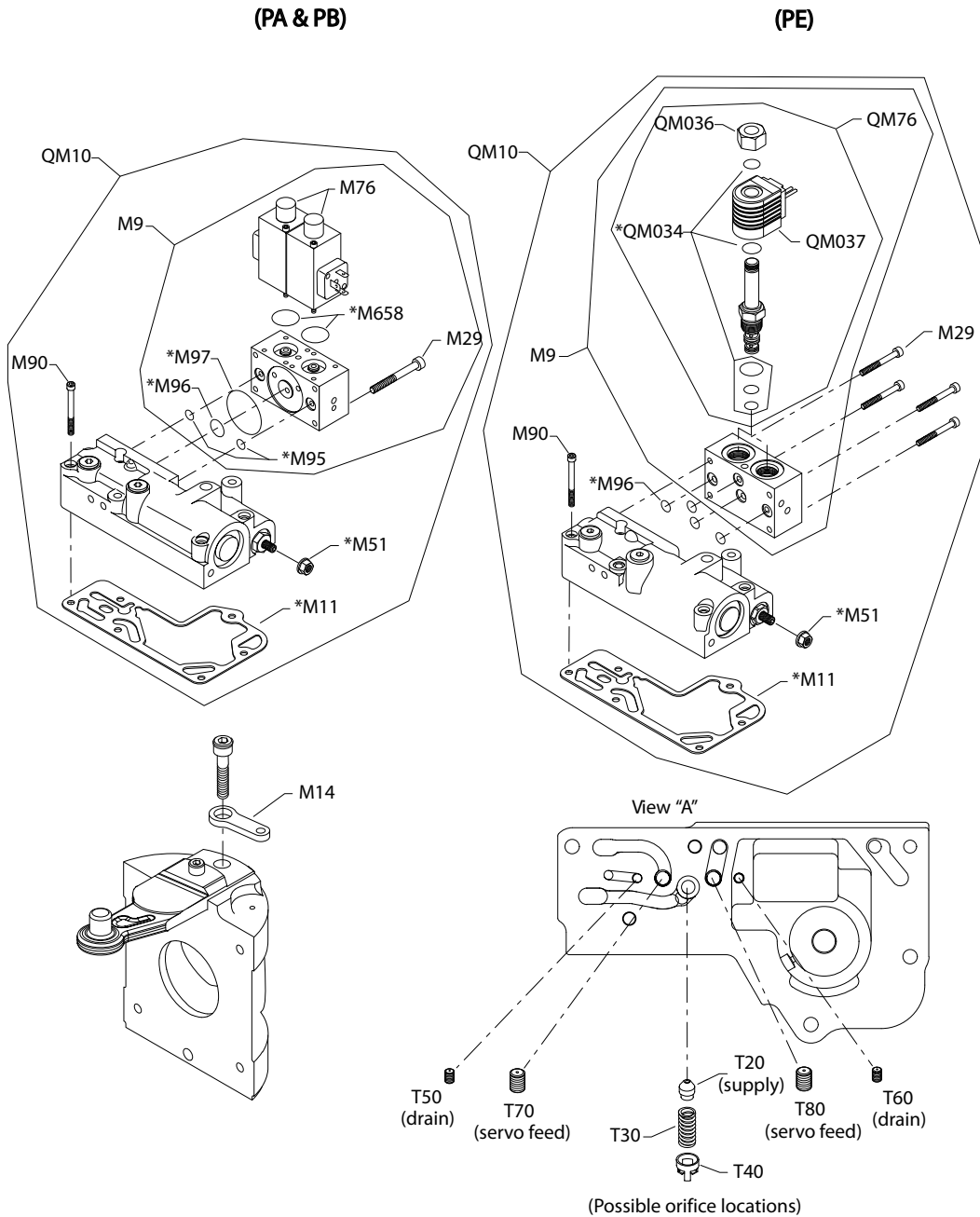
Order code: NU

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	94-05		504733	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-05	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M26	94-05		144725 (9004105-0110)	O-ring	1
M27	94-05		042507 (9006300-0044)	Retaining ring	1
M29	94-05		692889 (9007314-0611)	Screw	2
M51	94-05		345462	Nut	1
M70	94-05		769075	Control handle, sharp bend	1
M72	94-05		040642 (9003513-0800)	Nut	1
M75	94-05		500147	Control manifold assembly	1
M76	94-05		8700100	Solenoid valve	1
M77	94-05		500260	Manifold gasket	1
M83	94-05		784686 (9004104-0130)	O-ring	1
M90	94-05		9007314-0614	Screw	6
QM10	94-05		11015114	MDC kit, NL w/nss	1
QM89	94-05		11087773	Back-up alarm switch kit	1
QM210	94-05		11100415	Control seal kit	1

**Controls**

**S90P 100cc control PA, PB**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: PA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	94-07		782037	PDC, 12 volt	1
M11	94-07		8801241	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-07	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	94-07		035592	Screw	4
M51	94-07		9003509-0008	Seal nut	1
M76	94-07		11001795	Solenoid, 12 volt, Din connector	2
M90	94-07		692889 (9007314-0611)	Screw	6
M95	94-07		011296 (9004105-0120)	O-ring	2
M96	94-07		688721 (9004104-0170)	O-ring	1
M97	94-07		314534 (9004104-0310)	O-ring	1
M658	94-07		635938 (9004100-0210)	O-ring	2
QM10	94-07		11087561	HDC2, w/PDC	1
QM210	94-07		11096251	Control seal kit	1

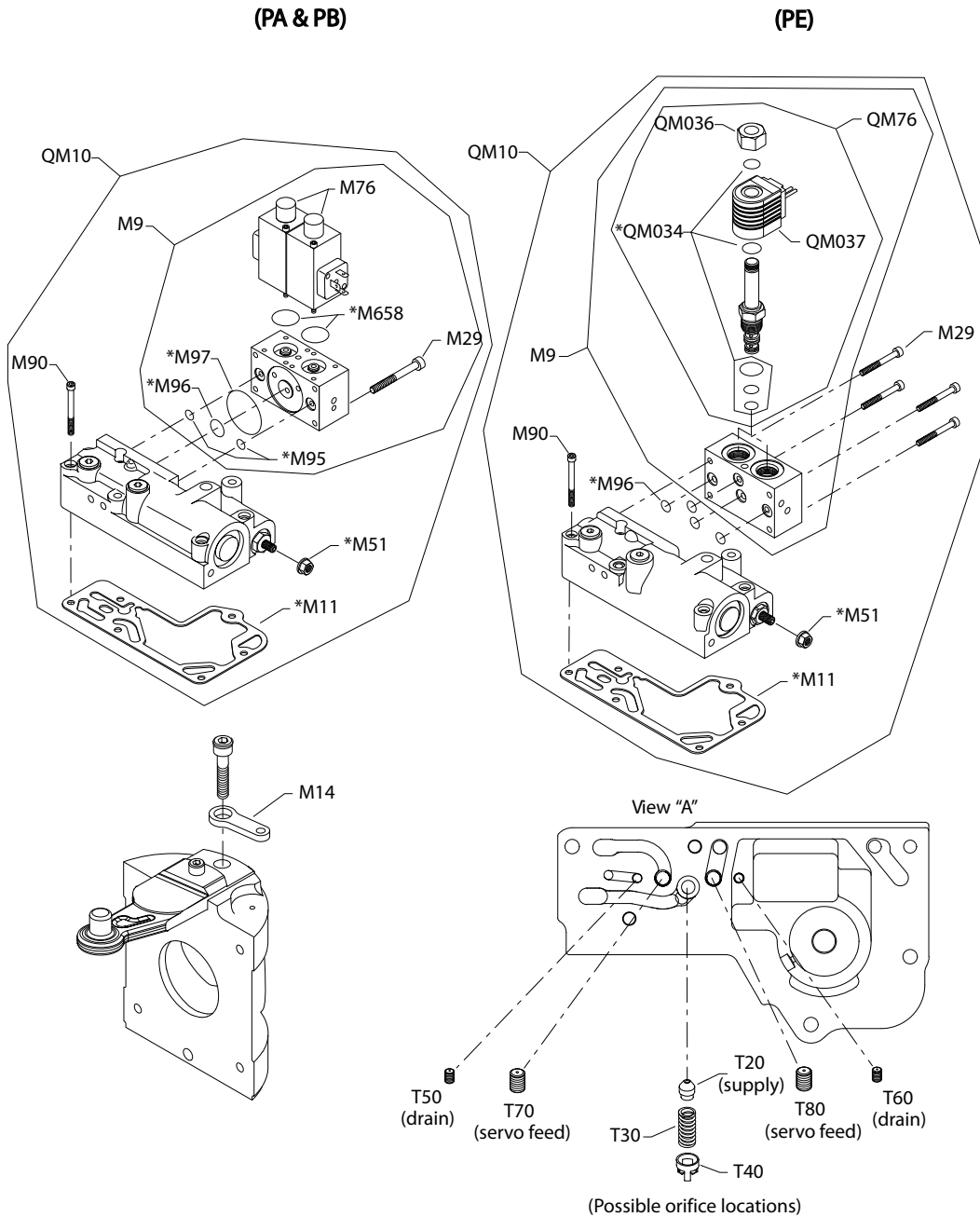
Order code: PB

M9	94-15		782045	PDC, 24 volt	1
M11	94-15		8801241	Control gasket	1
M14	96-40		11070306	Feedback link ( <a href="#">SB-1999-019</a> on page 298 & <a href="#">SB-2013-011</a> on page 324)	1
M14	94-15	96-39	8200344	Feedback link ( <a href="#">SB-1996-009</a> on page 287)	1
M29	94-15		035592	Screw	4
M51	94-15		9003509-0008	Seal nut	1
M76	94-15		11001794	Solenoid, 24 volt, Din connector	2
M90	94-15		692889 (9007314-0611)	Screw	6
M95	94-15		011296 (9004105-0120)	O-ring	2
M96	94-15		688721 (9004104-0170)	O-ring	1
M97	94-15		314534 (9004104-0310)	O-ring	1
M658	94-15		635938 (9004100-0210)	O-ring	2
QM10	94-15		11034093	Electro-hydraulic control kit	1
QM210	94-15		11138468	Control seal kit	1

**Controls**

**S90P control PE**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

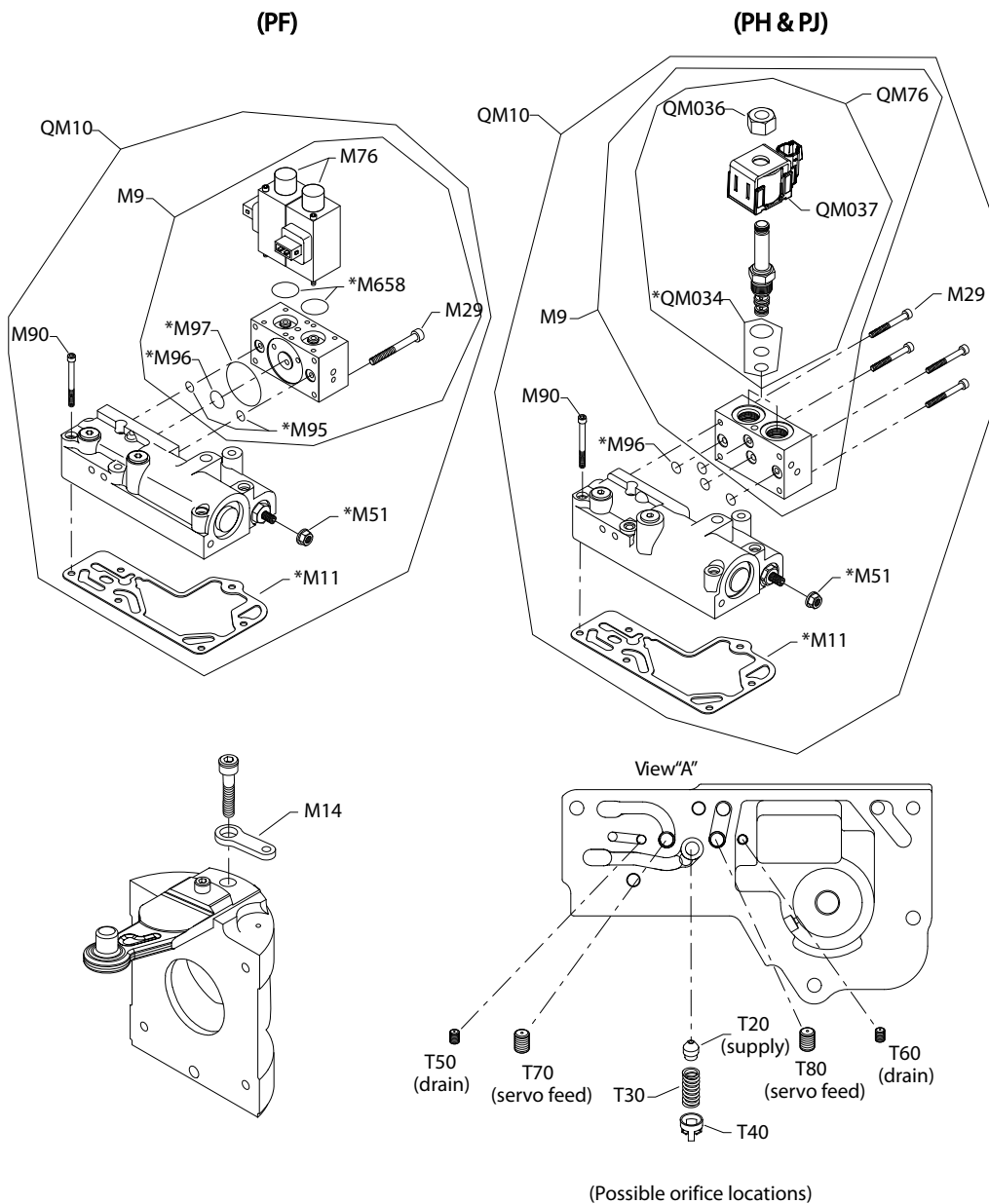
Order code: PE

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	10-30		11175053	HIC, proportional reducing manifold assembly	1
M11	10-30		8801241	Control gasket	1
M14	10-30		11070306	Feedback link	1
M29	10-30		K28807	Screw	4
M51	10-30		9003509-0008	Seal nut	1
M90	10-30		692889 (9007314-0611)	Screw	6
M96	10-30		9004105-0120	O-ring	4
QM10	10-30		8510286	EDC, high current, 3-11 bar, 12 volt	1
QM034	10-30		11100210	Solenoid valve seal kit	2
QM036	10-30		11175054	Coil nut	2
QM037	10-30		11175055	Coil, 12 volt	2
QM76	10-30		11175056	Solenoid valve, 12 volt	2
QM210	10-30		11100211	Control seal kit	1

**Controls**

**S90 100cc pump control PF-PJ**

Parts configuration



All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

\* Included in control seal kit QM210



## Controls

Order code: PF

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M9	03-32		519719	PDC, 12 volt	1
M11	03-32		8801241	Control gasket	1
M14	03-32		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	03-32		035592	Screw	4
M51	03-32		9003509-0008	Seal nut	1
M76	03-32		11001793	Solenoid, 12 volt, AMP connector	2
M90	03-32		692889 (9007314-0611)	Screw	6
M95	03-32		011296 (9004105-0120)	O-ring	2
M96	03-32		688721 (9004104-0170)	O-ring	1
M97	03-32		314534 (9004104-0310)	O-ring	1
M658	03-32		635938 (9004100-0210)	O-ring	2
QM10	03-32		11087592	EDC2, 12 volt, AMP connector	1
QM210	03-32		11096251	Control seal kit	1

Order code: PH

M9	12-38		11175060	Reducing manifold	1
M11	12-38		8801241	Control gasket	1
M14	12-38		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	12-38		K28807	Screw	4
M51	12-38		9003509-0008	Seal nut	1
M90	12-38		692889 (9007314-0611)	Screw	6
M96	12-38		011296 (9004105-0120)	O-ring	4
QM10	12-38		11121734	EDC2, 12 volt, AMP connector	1
QM034	12-38		11175057	Solenoid valve seal kit	2
QM036	12-38		11175058	Coil nut	2
QM037	12-38		11175059	Coil, 12 volt	2
QM76	12-38		11174842	Solenoid valve, 12 volt	2
QM210	12-38		11138468	Control seal kit	1

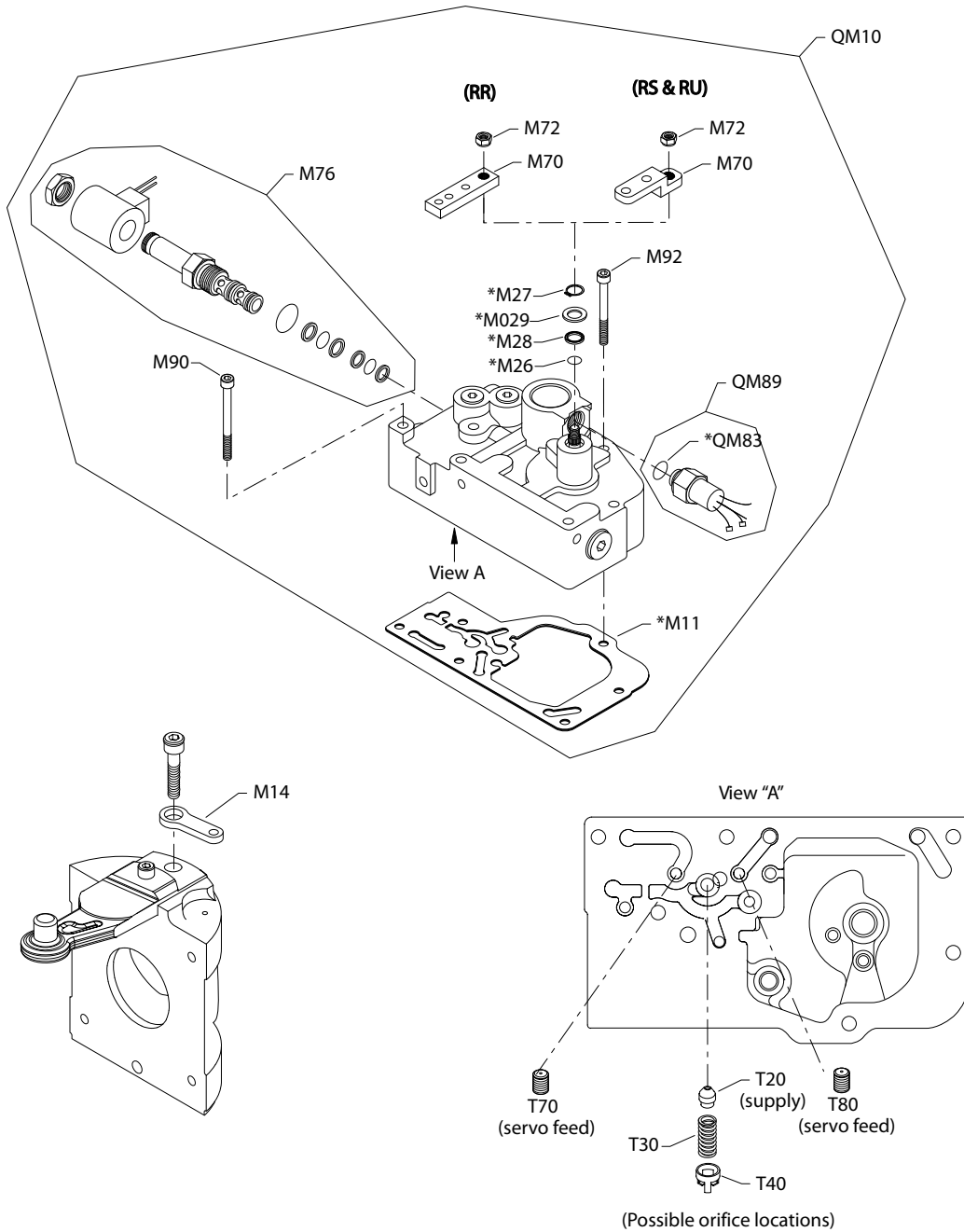
Order code: PJ

M9	14-15		11175061	Reducing manifold	1
M11	14-15		8801241	Control gasket	1
M14	14-15		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M29	14-15		K28807	Screw	4
M51	14-15		9003509-0008	Seal nut	1
M90	14-15		692889 (9007314-0611)	Screw	6
M96	14-15		011296 (9004105-0120)	O-ring	4
QM10	14-15		11141118	EDC2, 24 volt	1
QM034	14-15		11175057	Solenoid valve seal kit	2
QM036	14-15		11175058	Coil nut	2
QM037	14-15		11175074	Coil, 24 volt	2
QM76	14-15		11175075	Solenoid valve, 24 volt	2
QM210	14-15		11100211	Control seal kit	1

**Controls**

**S90P control RR, RS**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: RR

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	99-06		510378	Control gasket	1
M14	99-06		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M26	99-06		144725 (9004105-0110)	O-ring	1
M27	99-06		042507 (9006300-0044)	Retaining ring	1
M28	99-06		510690	Lip seal	1
M70	99-06		9800916	Control handle	1
M72	99-06		040642 (9003513-0800)	Nut	1
M76	99-06		513582	Solenoid valve, 12 volt	1
M90	99-06		354407	Screw	5
M92	99-06		510382	Screw	1
QM10	99-06		8510245	MDC kit, roller	1
QM83	99-06		001131 (9004201-5000)	O-ring	1
QM89	99-06		11099847	Neutral start switch, high force	1
QM210	99-06		11100030	Control seal kit	1

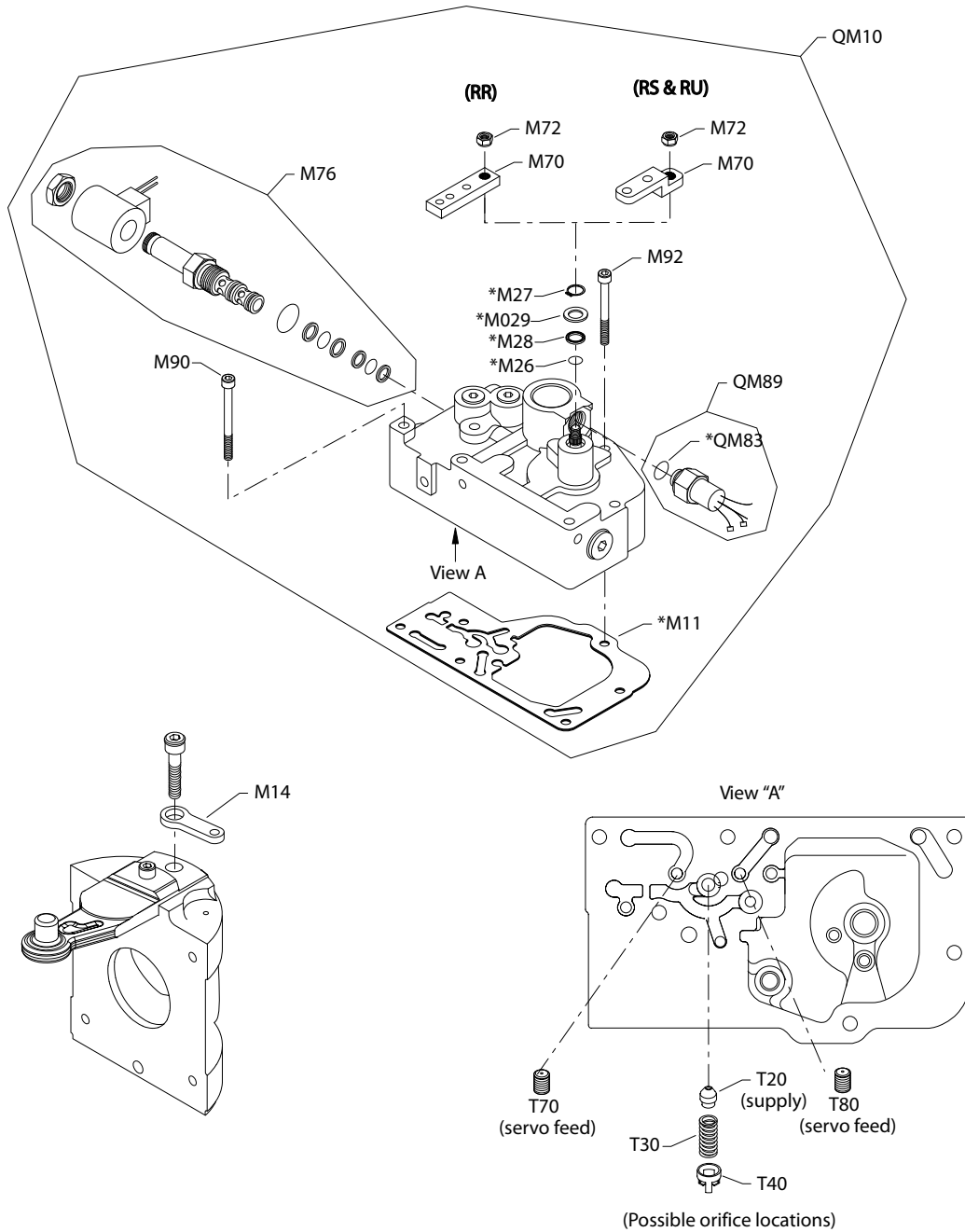
Order code: RS

M11	01-15		510378	Control gasket	1
M14	01-15		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M26	01-15		144725 (9004105-0110)	O-ring	1
M27	01-15		042507 (9006300-0044)	Retaining ring	1
M28	01-15		510690	Lip seal	1
M70	01-15		769075	Control handle, sharp bend	1
M72	01-15		040642 (9003513-0800)	Nut	1
M76	01-15		513018	Solenoid valve, 24 volt	1
M90	01-15		354407	Screw	5
M92	99-06		510382	Screw	1
QM10	01-15		11087610	MDC kit, roller	1
QM83	01-15		001131 (9004201-5000)	O-ring	1
QM89	01-15		11099847	Neutral start switch, high force	1
QM210	01-15		11100030	Control seal kit	1

**Controls**

**S90P control RU**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

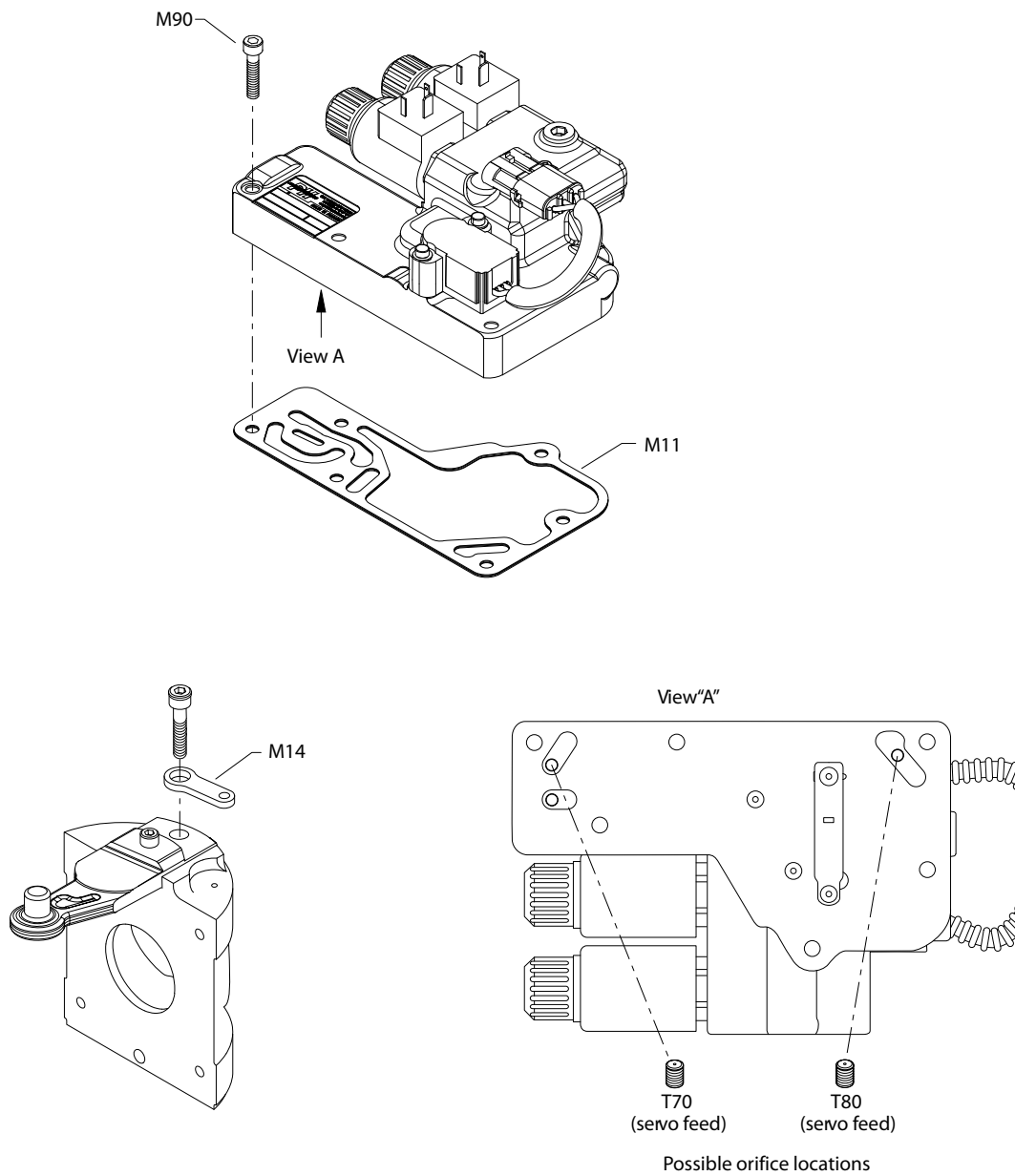
Order code: RU

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	97-30		510378	Control gasket	1
M14	97-30		11070306	Feedback link ( <a href="#">SB-2013-011</a> on page 324)	1
M26	97-30		144725 (9004105-0110)	O-ring	1
M27	97-30		042507 (9006300-0044)	Retaining ring	1
M28	97-30		510690	Lip seal	1
M70	97-30		769075	Control handle, sharp bend	1
M72	97-30		040642 (9003513-0800)	Nut	1
M76	97-30		11197563	Solenoid valve, 12 volt	1
M90	97-30		354407	Screw	5
M92	99-06		510382	Screw	1
QM10	97-30		11087609	MDC kit, roller	1
QM83	97-30		001131 (9004201-5000)	O-ring	1
QM89	97-30		11099847	Neutral start switch, high force	1
QM210	97-30		11100030	Control seal kit	1

**Controls**

**S90P control SA-SE**

*Parts configuration*



All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

\* Included in control seal kit QM210

## Controls

Order code: SA

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M11	07-23		8800923	Gasket	1
M14	07-23		11070306	Feedback link	1
M90	07-23		694356 (9007314-0608)	Screw	6

Order code: SB

M11	07-23		8800923	Gasket	1
M14	07-23		11070306	Feedback link	1
M90	07-23		694356 (9007314-0608)	Screw	6

Order code: SD

M11	10-34		8800923	Gasket	1
M14	10-34		11070306	Feedback link	1
M90	10-34		694356 (9007314-0608)	Screw	6

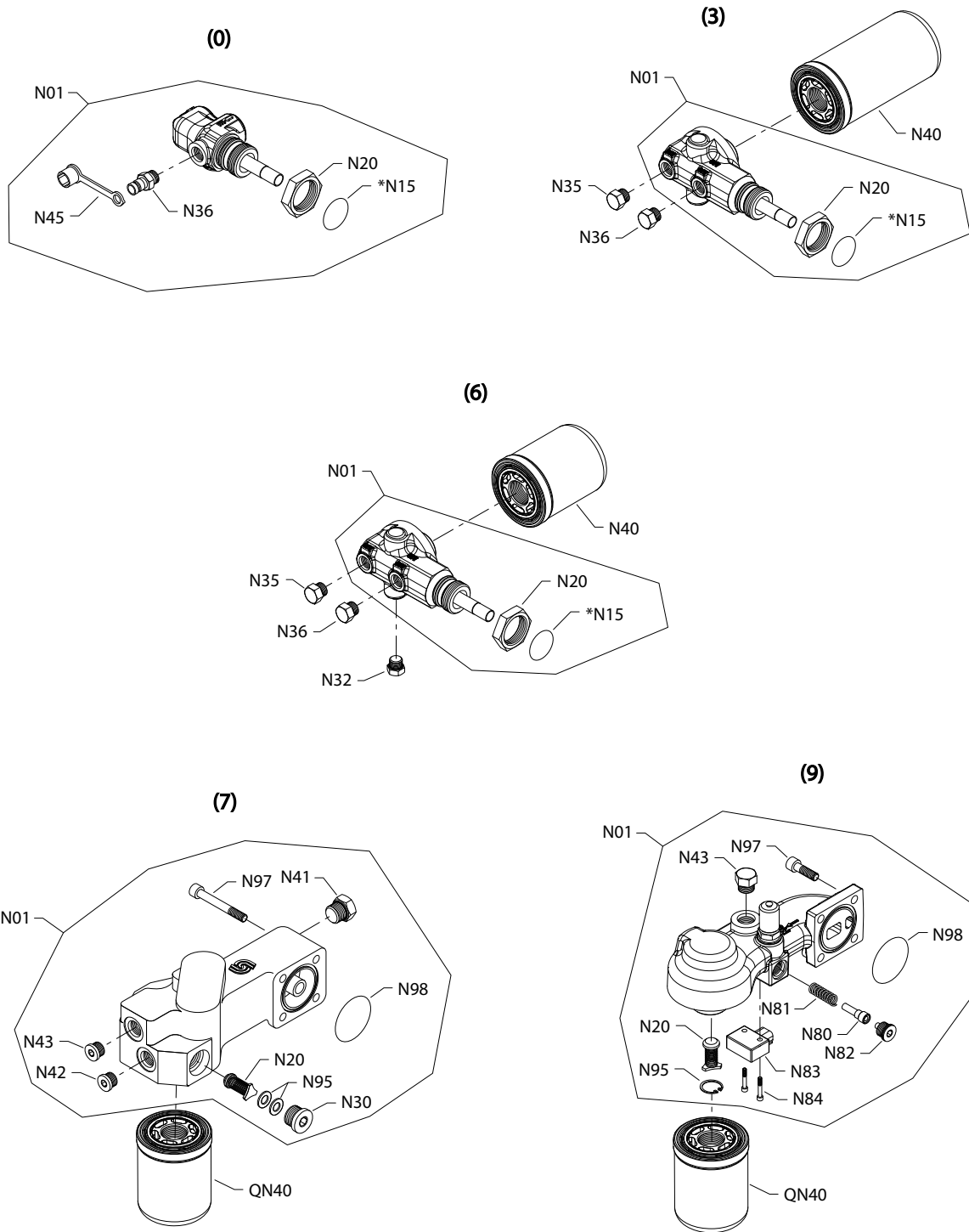
Order code: SE

M11	10-34		8800923	Gasket	1
M14	10-34		11070306	Feedback link	1
M90	10-34		694356 (9007314-0608)	Screw	6

**Filtration**

**S90 100cc pump filtration 0-9**

Parts configuration



\* Included in base pump seal kit Q210



## Filtration

Order code: 0

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N01	08-01		11060431	Filter manifold assembly	1
N15	08-01		001172 (9004201-9000)	O-ring	1
N20	08-01		11049997	Nut	1
N36	08-01		8700127	Diagnostic receptacle	1
N45	08-01		8700128	Dust cover	1

Order code: 3

N01	99-18		11060344	Filter manifold assembly	1
N15	99-18		001172 (9004201-9000)	O-ring	1
N20	99-18		11049997	Nut	1
N35	99-18		140644 (9005100-5600)	Plug assembly	1
N36	99-18		140644 (9005100-5600)	Plug assembly	1
QN40	99-18		11004919	Filter, long	1

Order code: 6

N01	00-01		11060345	Filter manifold assembly	1
N15	00-01		001172 (9004201-9000)	O-ring	1
N20	00-01		11049997	Nut	1
N32	00-01		140644 (9005100-5600)	Plug assembly	1
N35	00-01		140644 (9005100-5600)	Plug assembly	1
N36	00-01		140644 (9005100-5600)	Plug assembly	1
QN40	00-01		11004917	Filter, short	1

Order code: 7

N01	02-03		501831	Filter manifold assembly	1
N20	02-03		360768	Check valve	1
N30	02-03		365965	Plug assembly	1
N41	02-03		001537 (9005100-8700)	Plug assembly	1
N42	02-03		140644	Plug assembly	1
N43	02-03		140644	Plug assembly	1
N95	02-03		500115	Washer	2
N97	02-03		376269	Screw	4
N98	02-03		9004104-0320	O-ring	1
QN40	02-03		11004919	Filter, long	1

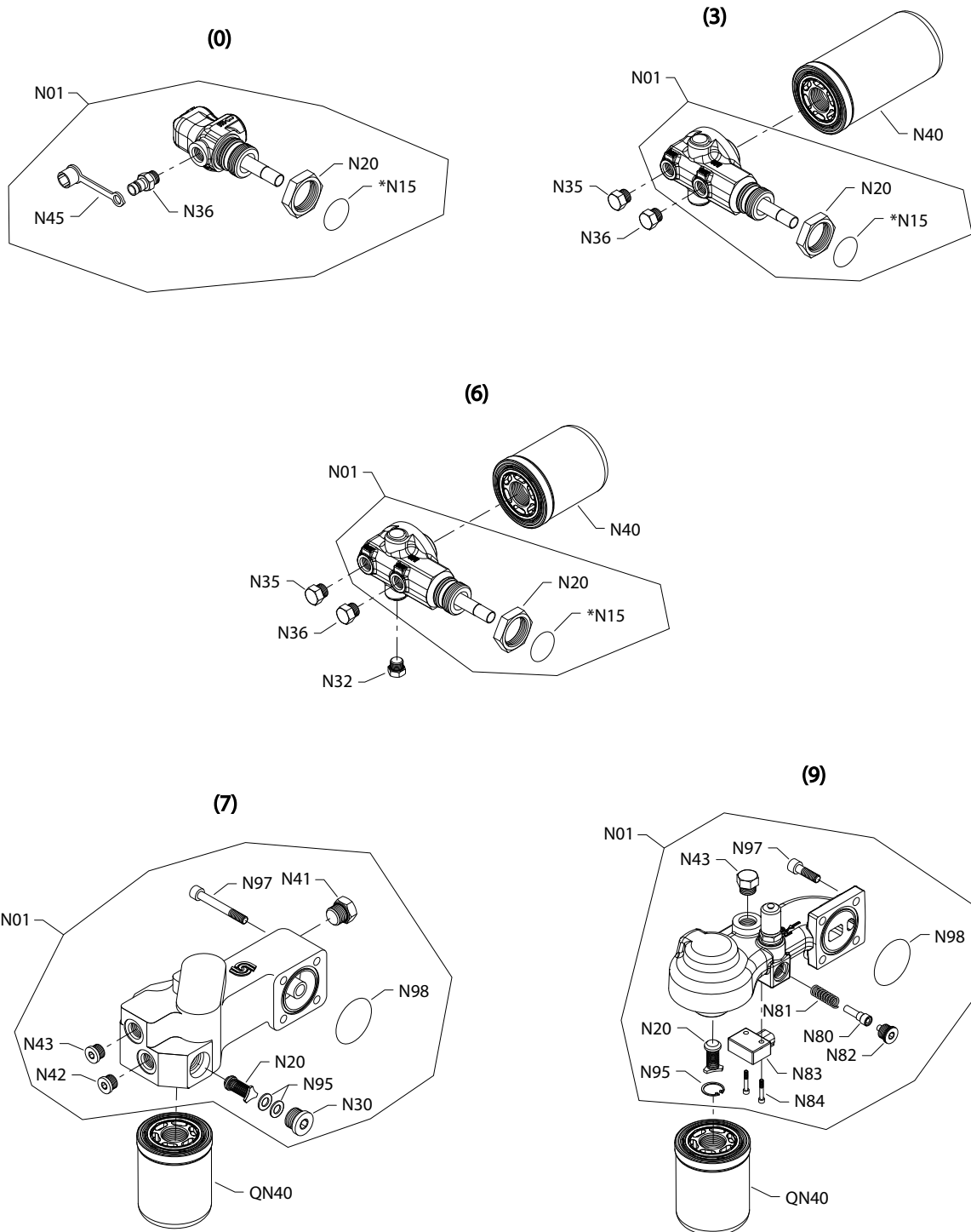
Order code: 8

No parts
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[Parts continue to the next 2 pages.](#)

**Filtration**

*Parts configuration*



\* Included in base pump seal kit Q210

## Filtration

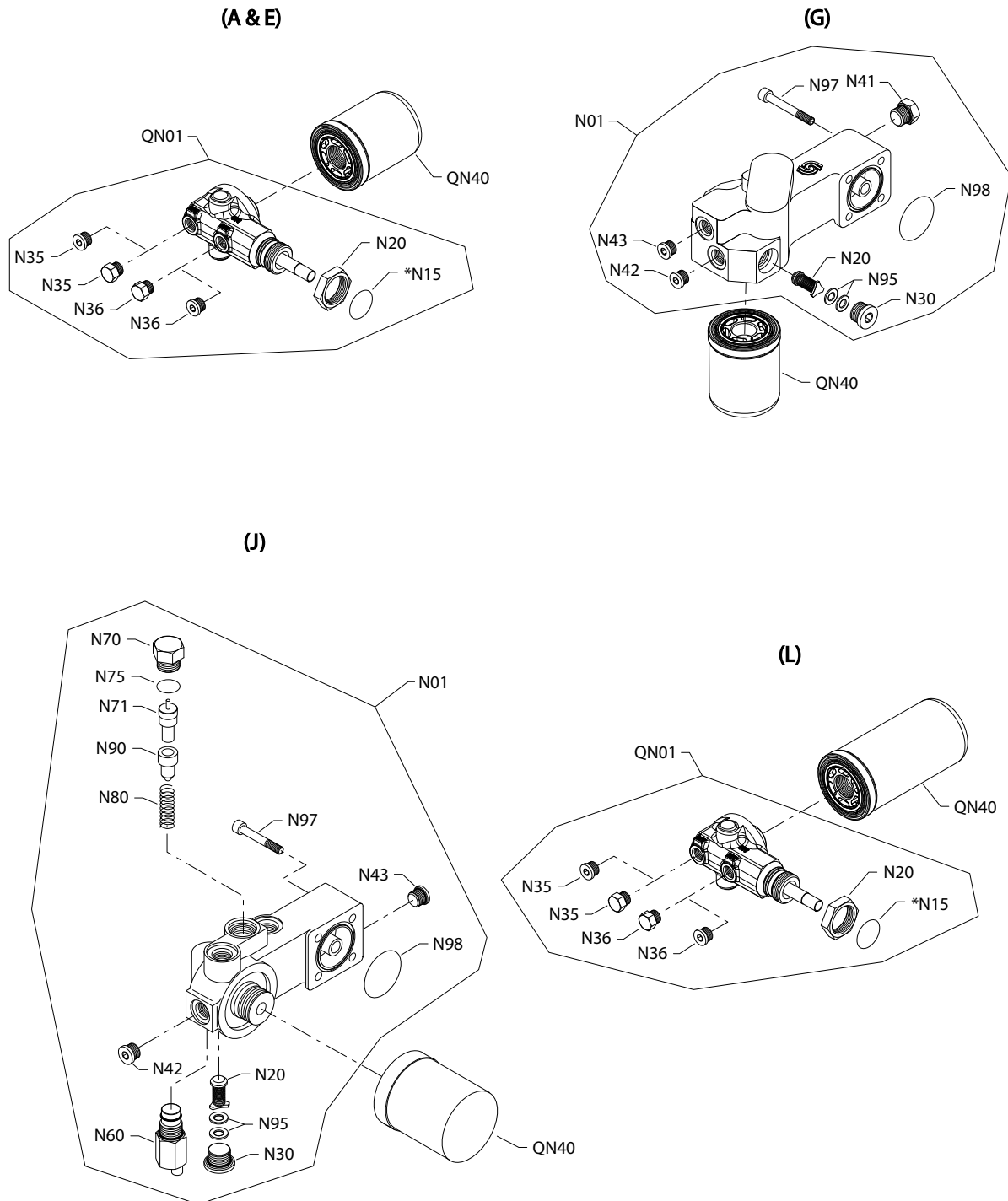
Order code: 9

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N01	02-03		518202	Filter manifold assembly	1
N20	02-03		520974	Check valve	1
N43	02-03		508497	Plug assembly	1
N80	02-03		518331	Magnetic piston	1
N81	02-03		519585	Spring	1
N82	02-03		518335	Plug assembly	1
N83	02-03		11000357	Filtration sensor	1
N84	02-03		519968	Screw	2
N95	02-03		042515	Retaining ring	1
N97	02-03		393603	Screw	4
N98	02-03		9004104-0320	O-ring	1
QN40	02-03		11004919	Filter, long	1

**Filtration**

**S90 100cc pump filtration A-L**

*Parts configuration*



\* Included in base pump seal kit Q210

## Filtration

Order code: A

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N15	02-41		001172 (9004201-9000)	O-ring	1
N20	02-41		11049997	Nut	1
N35	02-41		140644 (9005100-5600)	Plug assembly	1
N36	02-41		140644 (9005100-5600)	Plug assembly	1
QN01	02-41		11145249	Filter manifold assembly	1
QN40	02-41		11004917	Filter, short	1

Order code: E

N15	96-46		001172 (9004201-9000)	O-ring	1
N20	96-46		11049997	Nut	1
N35	96-46		140644 (9005100-5600)	Plug assembly	1
N36	96-46		140644 (9005100-5600)	Plug assembly	1
QN01	96-46		11145249	Filter manifold assembly	1
QN40	96-46		11004917	Filter, short	1

Order code: G

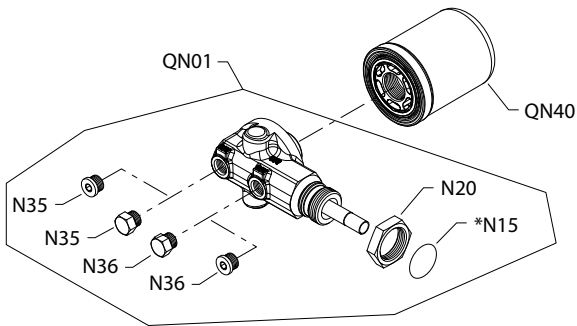
N01	96-46		501831	Filter manifold assembly	1
N20	96-46		360768	Check valve	1
N30	96-46		365965	Plug assembly	1
N41	96-46		001537	Plug assembly	1
N42	96-46		140644 (9005100-5600)	Plug assembly	1
N43	96-46		140644 (9005100-5600)	Plug assembly	1
N95	96-46		500115	Waher	2
N97	96-46		376269	Screw	4
N98	96-46		9004104-0320	O-ring	1
QN40	96-46		11004917	Filter, short	1

[Parts continue to the next 2 pages.](#)

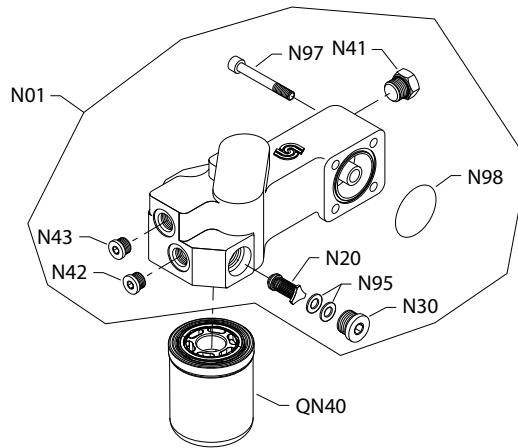
**Filtration**

*Parts configuration*

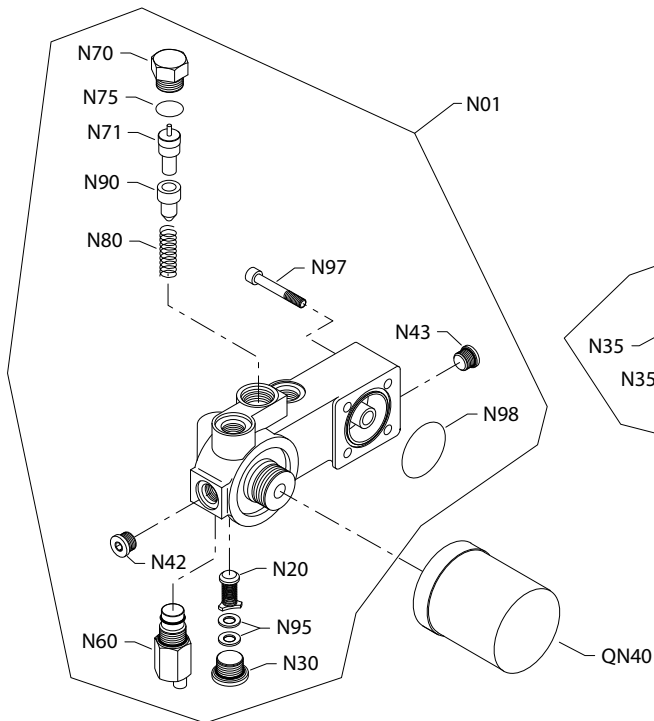
**(A & E)**



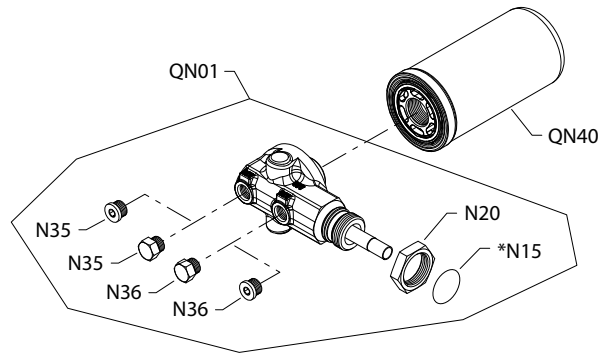
**(G)**



**(J)**



**(L)**



\* Included in base pump seal kit Q210

## Filtration

Order code: J

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N01	96-46		500120	Filter manifold assembly	1
N20	96-46		360768	Check valve	1
N30	96-46		365965	Plug assembly	1
N42	96-46		140644 (9005100-5600)	Plug assembly	1
N43	96-46		140644 (9005100-5600)	Plug assembly	1
N60	96-46		500114	Dust indication	1
N70	96-46		502184	Plug assembly	1
N71	96-46		347419	Wax element	1
N75	96-46		001149 (9004201-6200)	O-ring	1
N80	96-46		502224	Spring	1
N90	96-46		502240	Poppet	1
N95	96-46		500115	Washer	2
N97	96-46		376269	Screw	4
N98	96-46		9004104-0320	O-ring	1
QN40	96-46		11004917	Filter, short	1

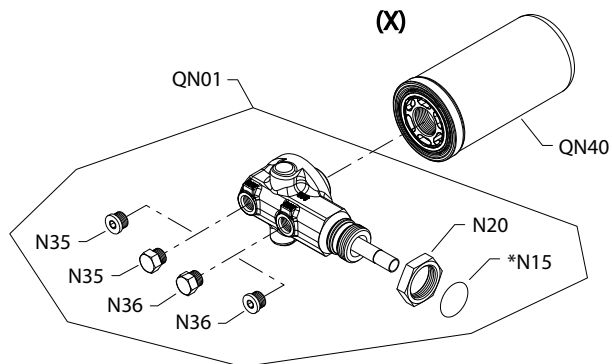
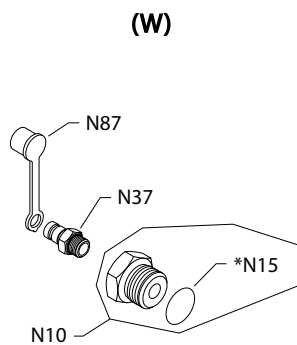
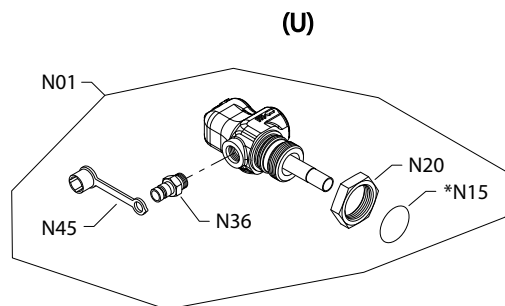
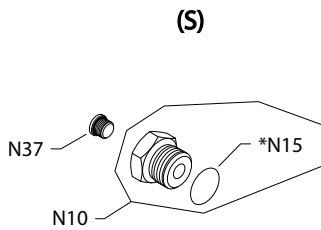
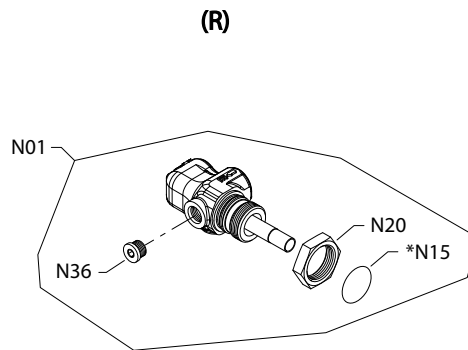
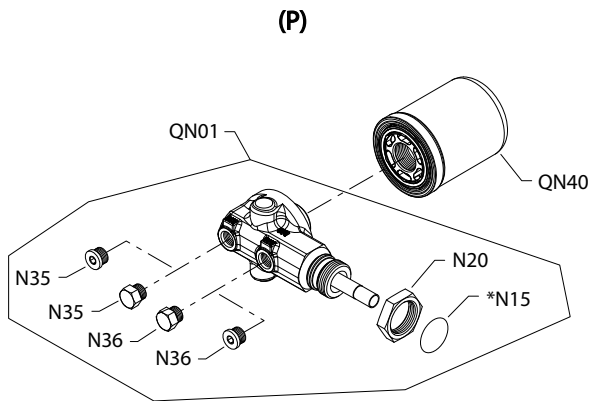
Order code: L

N15	87-02		001172 (9004201-9000)	O-ring	1
N20	95-18		11049997	Nut (SB-1994-036)	1
N20	87-02	95-17	700492 (9002863-1600)	Nut	1
N35	87-02		140644 (9005100-5600)	Plug assembly	1
N36	87-02		140644 (9005100-5600)	Plug assembly	1
QN01	87-02		11145249	Filter manifold assembly	1
QN40	87-02		11004919	Filter, long	1

**Filtration**

**S90 100cc pump filtration P-X**

Parts configuration



\* Included in base pump seal kit Q210



## Filtration

Order code: P

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N15	87-02		001172 (9004201-9000)	O-ring	1
N20	95-18		11049997	Nut ( <a href="#">SB-1994-36</a> on page 283)	1
N20	87-02	95-17	700492 (9002863-1600)	Nut	1
N35	87-02		140644 (9005100-5600)	Plug assembly	1
N36	87-02		140644 (9005100-5600)	Plug assembly	1
QN01	87-02		11145249	Filter manifold assembly	1
QN40	87-02		11004917	Filter, short	1

Order code: R

N01	87-02		11060427	Filter manifold assembly	1
N15	87-02		001172 (9004201-9000)	O-ring	1
N20	95-18		11049997	Nut ( <a href="#">SB-1994-36</a> on page 283)	1
N20	87-02	95-17	700492 (9002863-1600)	Nut	1
N36	87-02		140644 (9005100-5600)	Plug assembly	1

Order code: S

N10	87-02		5000230	Reducer assembly	1
N15	87-02		001172 (9004201-9000)	O-ring	1
N37	87-02		140644 (9005110-5600)	Plug assembly	1

Order code: U

N01	96-16		11060428	Filter manifold assembly	1
N15	96-16		001172 (9004201-9000)	O-ring	1
N20	96-16		11049997	Nut	1
N36	96-16		140644	Plug assembly	1
N41	96-16		8700127	Diagnostic receptacle	1
N45	96-16		8700128	Dust cover	1

Order code: V

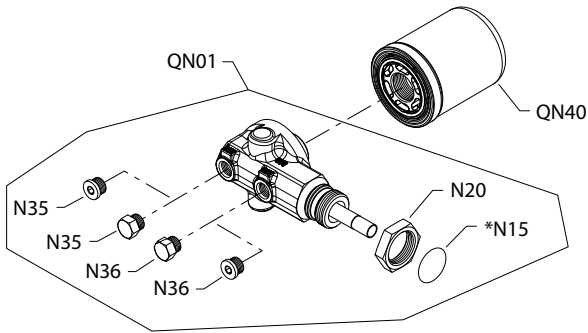
No parts					
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[Parts continue to the next 2 pages.](#)

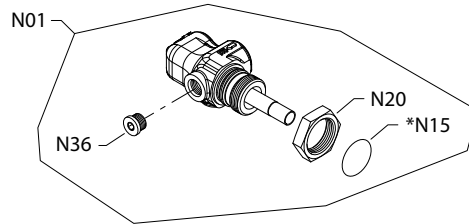
**Filtration**

*Parts configuration*

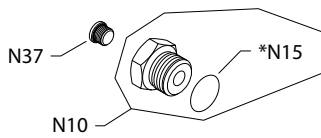
**(P)**



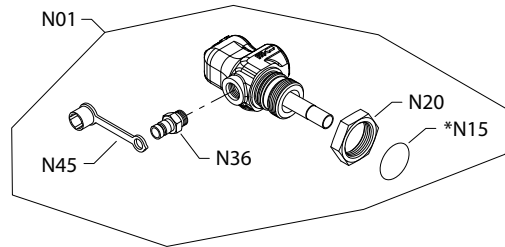
**(R)**



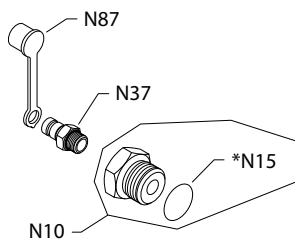
**(S)**



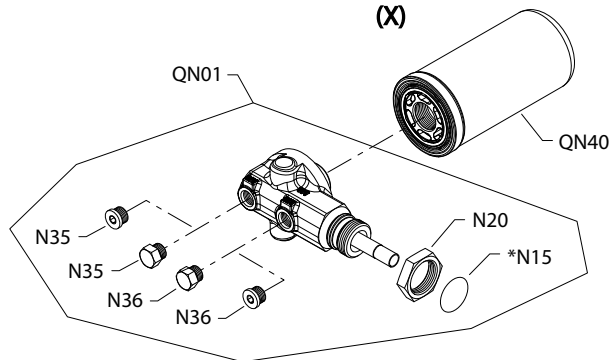
**(U)**



**(W)**



**(X)**



\* Included in base pump seal kit Q210

## Filtration

Order code: W

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N10	87-02		5000230	Reducer assembly	1
N15	87-02		001172 (9004201-9000)	O-ring	1
N37	08-01		8700127	Diagnostic receptacle	1
N87	08-01		8700128	Dust cover	1

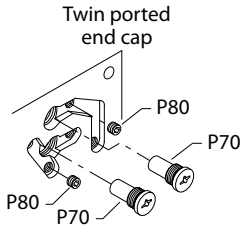
Order code: X

N15	01-01		001172 (9004201-9000)	O-ring	1
N20	01-01		11049997	Nut	1
N35	01-01		9005100-5600	Plug assembly	1
N36	01-01		9005100-5600	Plug assembly	1
QN01	01-01		11145249	Filter manifold assembly	1
QN40	01-01		11004919	Filter, long	1

**High pressure protection**

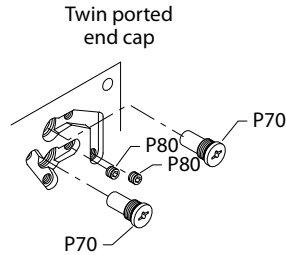
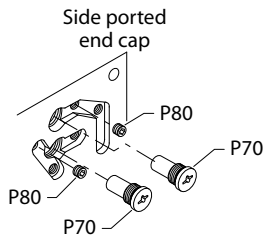
**S90 100cc pump high pressure protection 1-7, A-F**

*Parts configuration*



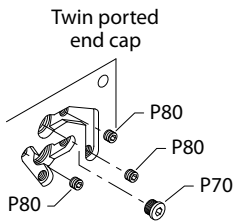
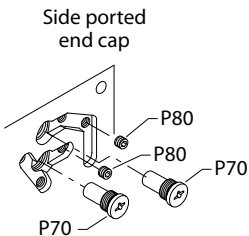
View "A" with pressure limiters, CCW rotation

**Options 1, 5, 6 & F**



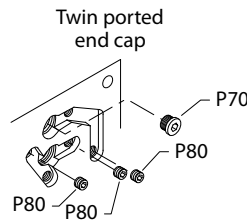
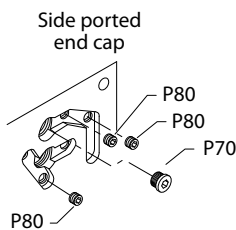
View "A" with pressure limiters, CW rotation

**Options 1, 5, 6 & F**



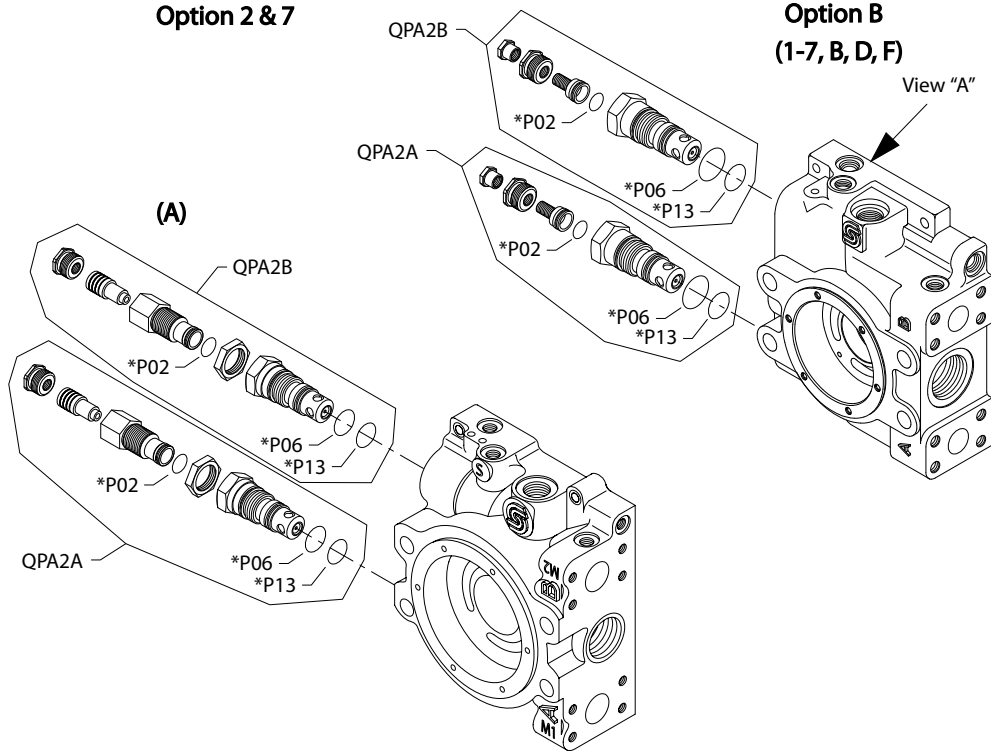
View "A" without pressure limiters, CCW/CW hand rotation

**Option 2 & 7**



View "A" with pressure limiter port A only, CW rotation

**Option B (1-7, B, D, F)**



Generic end cap used to show part location only.

\* Included in base pump seal kit Q210

## High pressure protection

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P02	87-02		688721 (9004104-0170)	O-ring	2
P06	87-02		071811	O-ring	2
P13	87-02		544742 (9004105-0190)	O-ring	2

### Order code: 1

P70	87-02		8800188	Check valve	2
P80	87-02		9005475-0004	Special plug assembly	2
QPA2A	87-02		8510022-1	Multi-function valve kit	1
QPA2B	87-02		8510022-1	Multi-function valve kit	1

### Order code: 2

P70	87-02		327007 (9005110-4400)	Plug ( <a href="#">SB-1989-003</a> on page 264)	1
P80	87-02		9005475-0004	Special plug assembly	3
QPA2A	87-02		8510022-2	Multi-function valve kit	1
QPA2B	87-02		8510022-2	Multi-function valve kit	1

### Order code: 4

QPA2A	87-02		8510022-7	Multi-function valve kit	1
QPA2B	87-02		8510022-7	Multi-function valve kit	1

### Order code: 5

P70	87-02		8800188	Check valve	2
P80	87-02		9005475-0004	Special plug assembly	2
QPA2A	87-02		8510240	Multi-function valve kit	1
QPA2B	87-02		8510240	Multi-function valve kit	1

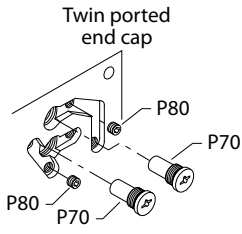
### Order code: 6

P70	87-02		8800188	Check valve	2
P80	87-02		9005475-0004	Special plug assembly	2
QPA2A	87-02		8510022-6	Multi-function valve kit	1
QPA2B	87-02		8510022-6	Multi-function valve kit	1

[Parts continue to the next 2 pages.](#)

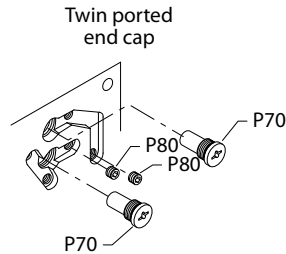
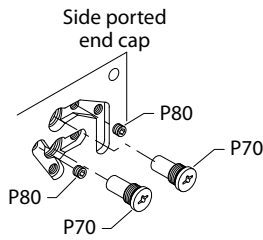
## High pressure protection

### Parts configuration



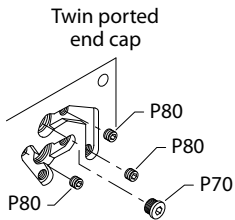
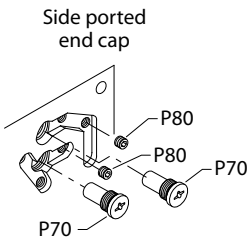
View "A" with pressure limiters, CCW rotation

#### Options 1, 5, 6 & F



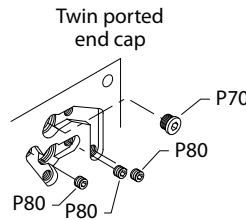
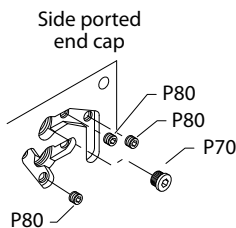
View "A" with pressure limiters, CW rotation

#### Options 1, 5, 6 & F



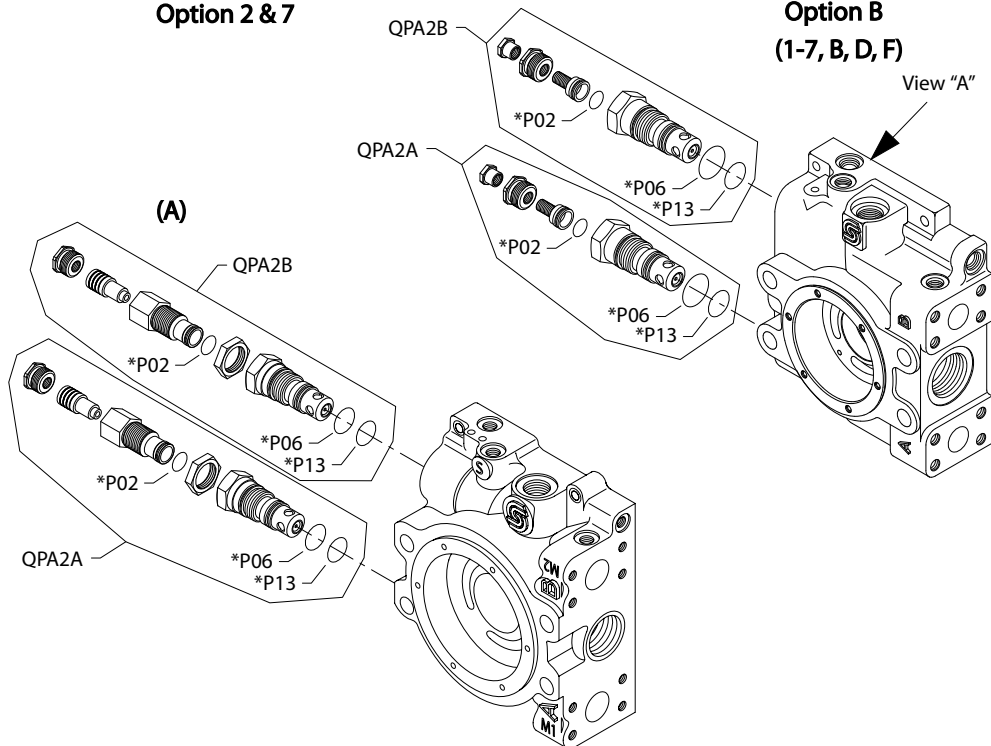
View "A" without pressure limiters, CCW/CW hand rotation

#### Option 2 & 7



View "A" with pressure limiter port A only, CW rotation

#### Option B (1-7, B, D, F)



Generic end cap used to show part location only.

\* Included in base pump seal kit Q210

## High pressure protection

Order code: 7

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P70	87-02		327007 (9005110-4400)	Plug ( <a href="#">SB-1989-003</a> on page 264)	1
P80	87-02		9005475-0004	Special plug assembly	3
QPA2A	87-02		8510022-7	Multi-function valve kit	1
QPA2B	87-02		8510022-7	Multi-function valve kit	1

Order code: A

QPA2A	87-02		8510202	Multi-function valve kit, 420 bar	1
QPA2B	87-02		8510202	Multi-function valve kit, 420 bar	1

Order code: B

P70	95-22		8800188	Check valve	1
P80	95-22		9005475-0004	Special plug assembly	3
QPA2A	95-22		8510022-1	Multi-function valve kit	1
QPA2B	95-22		8510022-7	Multi-function valve kit	1

Order code: D

QPA2A	92-39		8510388	Multi-function valve kit	1
QPA2B	92-39		8510388	Multi-function valve kit	1

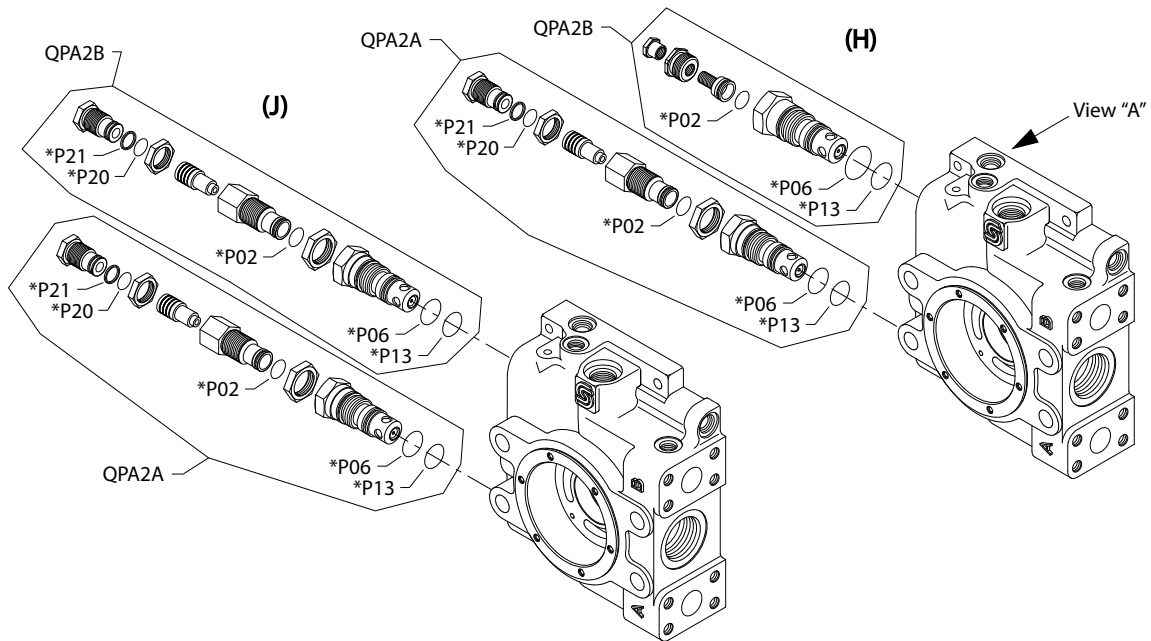
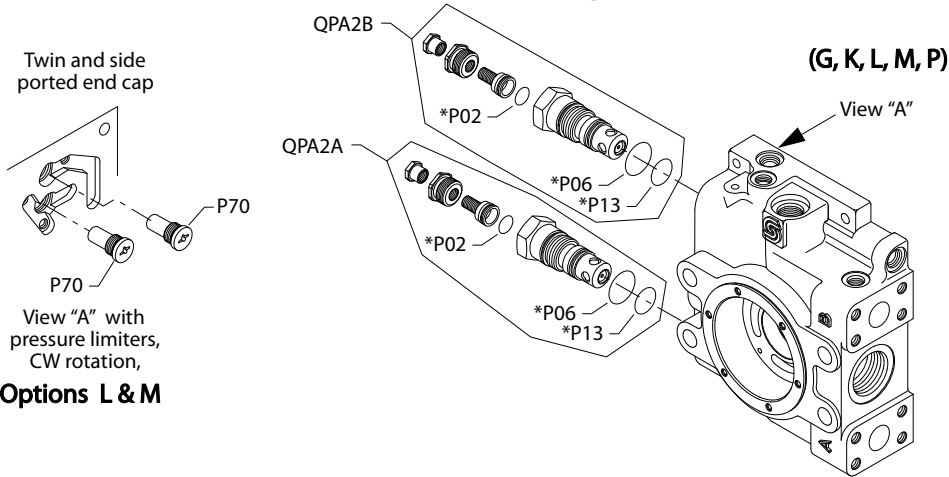
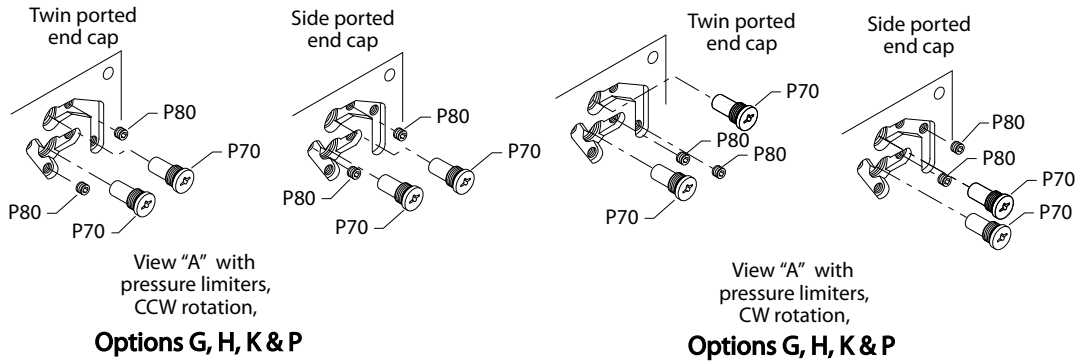
Order code: F

P70	04-36		8800188	Check valve	2
P80	04-36		9005475-0004	Special plug assembly	2
QPA2A	04-36		8510022-2	Multi-function valve kit	1
QPA2B	04-36		8510022-2	Multi-function valve kit	1

**High pressure protection**

**S90 100cc pump high pressure protection G-P**

*Parts configuration*



Generic end caps used to show valve locations only.

\* Included in base pump seal kit Q210



## High pressure protection

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P02	87-02		688721 (9004104-0170)	O-ring	2
P06	87-02		071811	O-ring	2
P13	87-02		544742 (9004105-0190)	O-ring	2

### Order code: G

P70	97-06		8800188	Check valve	2
P80	97-06		9005475-0004	Special plug	2
QPA2A	97-06		8510196	Multi-function valve kit	1
QPA2B	97-06		8510196	Multi-function valve kit	1

### Order code: H

P20	97-40		9004105-0160	O-ring	1
P21	97-40		9006110-0160	Back up ring	1
P70	97-40		8800188	Check valve	2
P80	97-40		9005475-0004	Special plug	2
QPA2A	97-40		8510275	Multi-function valve kit	1
QPA2B	97-40		8510022-1	Multi-function valve kit	1

### Order code: J

P20	97-06		9004105-0160	O-ring	2
P21	97-06		9006110-0160	Back up ring	2
QPA2A	97-40		8510273	Multi-function valve kit	1
QPA2B	97-40		8510273	Multi-function valve kit	1

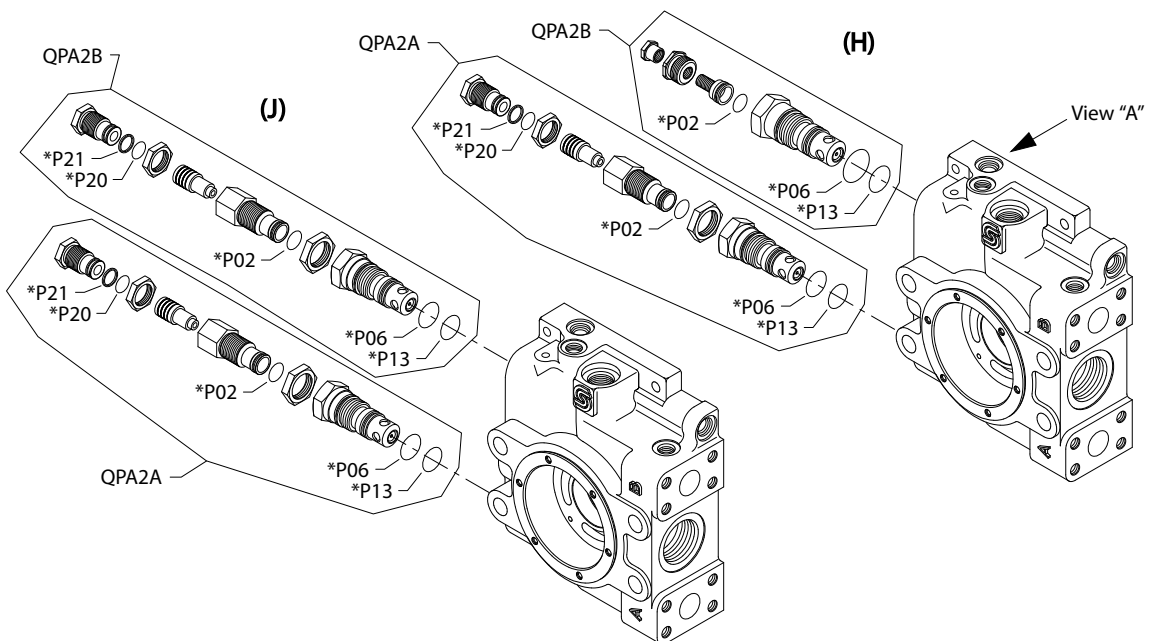
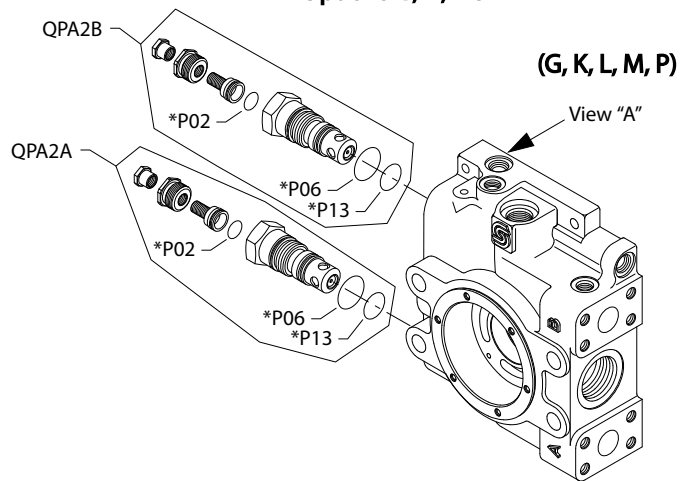
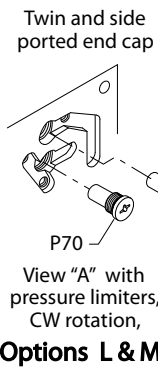
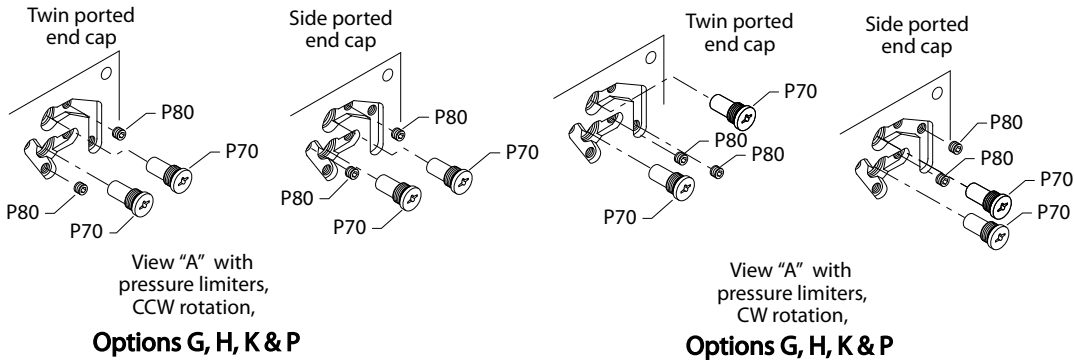
### Order code: K

P70	97-26		8800188	Check valve	2
P80	97-26		9005475-0004	Special plug	2
QPA2A	97-26		11079763	Multi-function valve kit	1
QPA2B	97-26		11079763	Multi-function valve kit	1

[Parts continue to the next 2 pages.](#)

### High pressure protection

#### Parts configuration



Generic end caps used to show valve locations only.

\* Included in base pump seal kit Q210

### High pressure protection

Order code: L

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P70	97-26		8800188	Check valve	2
QPA2A	97-26		8510022-6	Multi-function valve kit	1
QPA2B	97-26		8510022-6	Multi-function valve kit	1

Order code: M

P70	98-11		8800188	Check valve	2
QPA2A	98-11		8510022-1	Multi-function valve kit	1
QPA2B	98-11		8510022-1	Multi-function valve kit	1

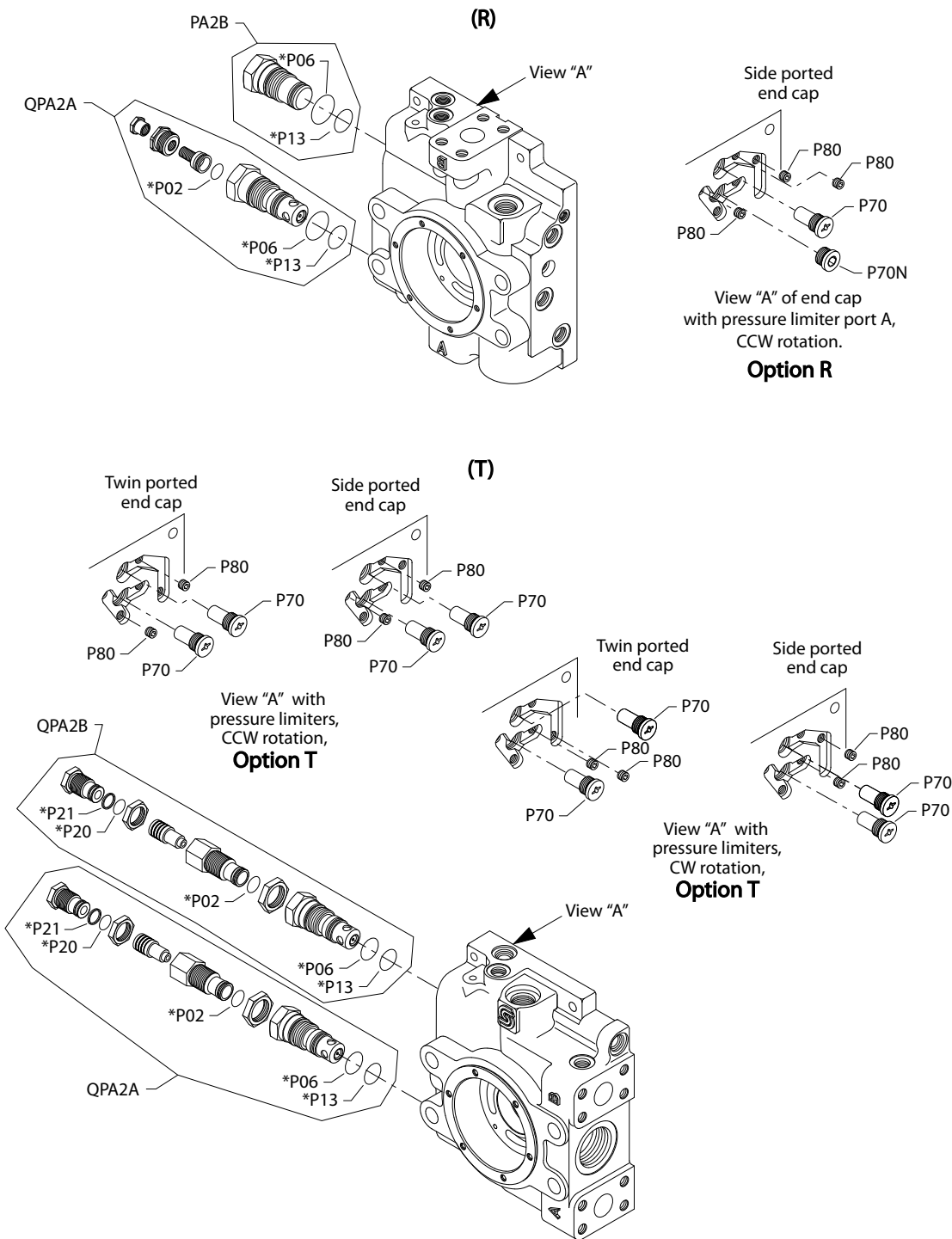
Order code: P

P70	04-47		8800188	Check valve	2
P80	04-47		9005475-0004	Special plug	2
QPA2A	04-47		8510389	Multi-function valve kit	1
QPA2B	04-47		8510389	Multi-function valve kit	1

**High pressure protection**

**S90 100cc pump high pressure protection R, T**

Parts configuration



Generic end caps used to show valve locations only.

\* Included in base pump seal kit Q210

## High pressure protection

Order code: R

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P02	99-14		141564 (9004100-0170)	O-ring	1
P06	99-14		000836 (9004100-0200)	O-ring	2
P13	99-14		544742 (9004105-0190)	O-ring	2
P70	99-14		8800188	Check valve	1
P70N	99-14		327007 (9005110-4400)	Plug assembly	1
P80	99-14		9005475-0004	Special plug	3
PA2B	99-14		781971	Plug assembly	1
QPA2A	99-14		8510022-1	Multi-function valve kit	1

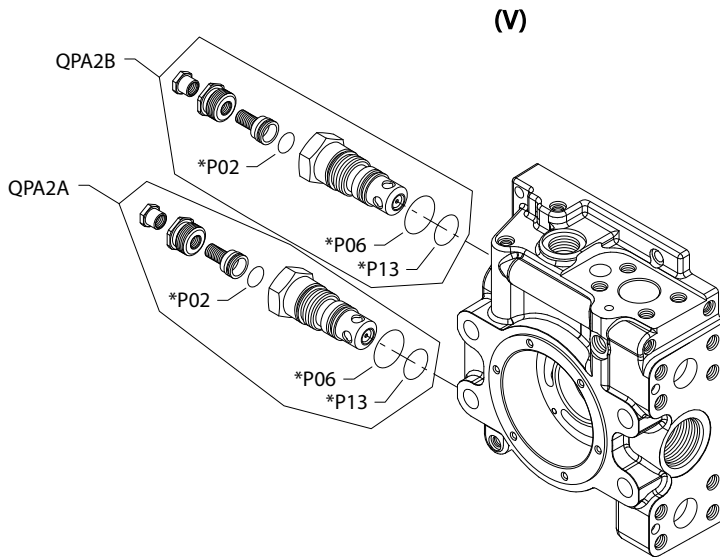
Order code: T

P02	00-35		141564 (9004100-0170)	O-ring	2
P06	00-35		000836 (9004100-0200)	O-ring	2
P13	00-35		544742 (9004105-0190)	O-ring	2
P20	00-35		9004105-0160	O-ring	2
P21	00-35		9006110-0160	Back up ring	2
P70	00-35		8800188	Check valve	2
P80	00-35		9005475-0004	Special plug	2
QPA2A	00-35		11079764	Multi-function valve kit	1
QPA2B	00-35		11079764	Multi-function valve kit	1

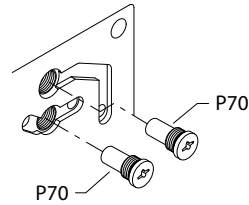
**High pressure protection**

**S90 100cc pump high pressure protection V, Z**

*Parts configuration*

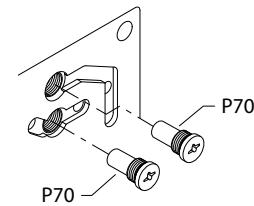


Twin ported  
 CCW rotation  
 end cap

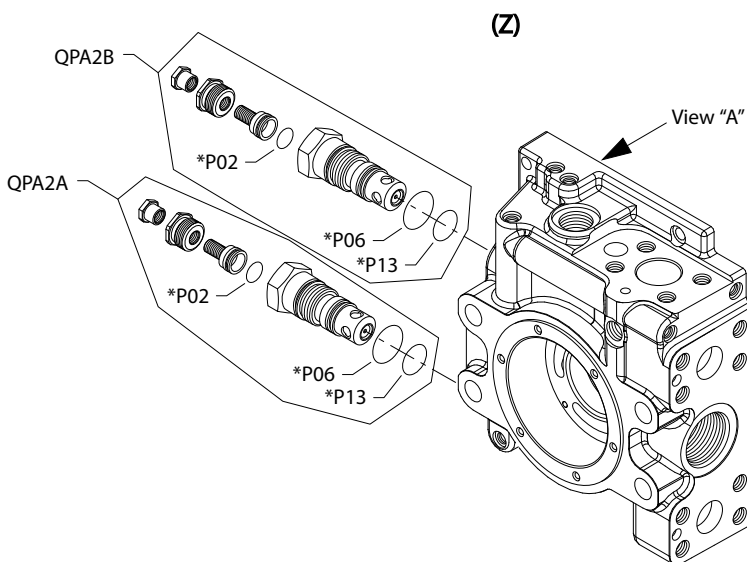


View "A" of end cap  
**Option V**

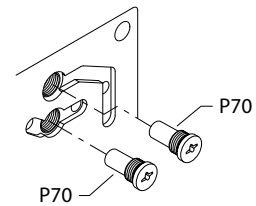
Twin ported  
 CW rotation  
 end cap



View "A" of end cap  
**Option V**



Twin ported  
 CW rotation  
 end cap



View "A" of end cap  
**Option Z**

Generic end caps used to show valve locations only.

\* Included in base pump seal kit Q210

## High pressure protection

### Common parts

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P02	87-02		141564 (9004100-0170)	O-ring	2
P06	87-02		000836 (9004100-0200)	O-ring	2
P13	87-02		544742 (9004105-0190)	O-ring	2

### Order code: V

P70	08-30		8800188	Check valve	2
QPA2A	08-30		8510240	Multi-function valve kit	1
QPA2B	08-30		8510240	Multi-function valve kit	1

### Order code: Z

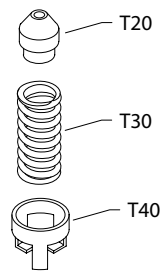
P70	04-12		8800188	Check valve	2
QPA2A	04-12		8510022-1	Multi-function valve kit	1
QPA2B	04-12		8510022-1	Multi-function valve kit	1

### Orifice

#### S90 100cc pump orifice 01-26

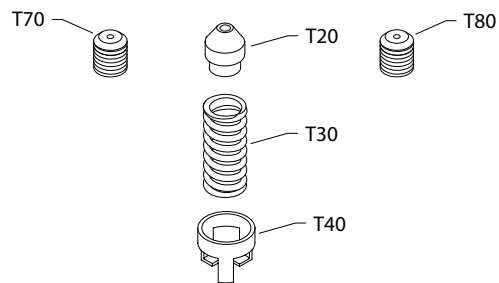
Parts configuration

#### (01-06, 09, 022)



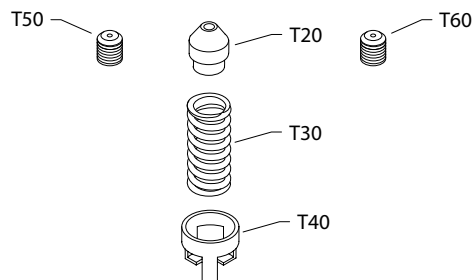
See control drawing  
for orifice location

#### (21, 26)



See control drawing  
for orifice location

#### (23)



See control drawing  
for orifice location



## Orifice

### Order code: 01

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		8801136	Orifice check valve, .018"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

### Order code: 02

T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

### Order code: 03

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

### Order code: 04

T20	87-42		11061970	Orifice check valve, .040"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

### Order code: 05

T20	87-42		11061981	Orifice check valve, .054"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

### Order code: 06

T20	87-42		11061993	Orifice check valve, .062"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

### Order code: 09

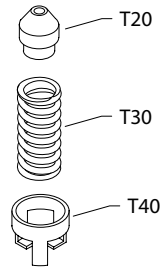
T20	87-42		11062006	Orifice check valve, .092"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

[Parts continue to the next 2 pages.](#)

## Orifice

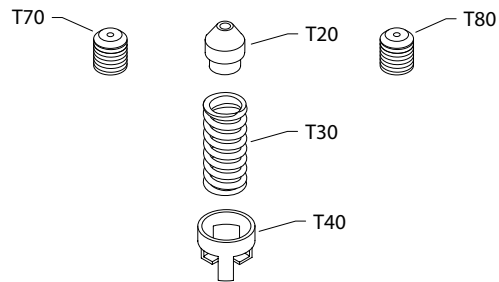
Parts configuration

**(01-06, 09, 022)**



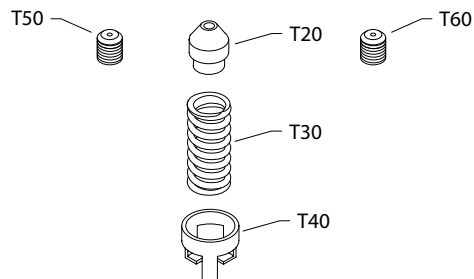
See control drawing  
for orifice location

**(21, 26)**



See control drawing  
for orifice location

**(23)**



See control drawing  
for orifice location

## Orifice

Order code: 21

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		11061970	Orifice check valve, .040"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
T80	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1

Order code: 22

T20	87-42		8801137	Orifice check valve, .022"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

Order code: 23

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
T60	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1

Order code: 26

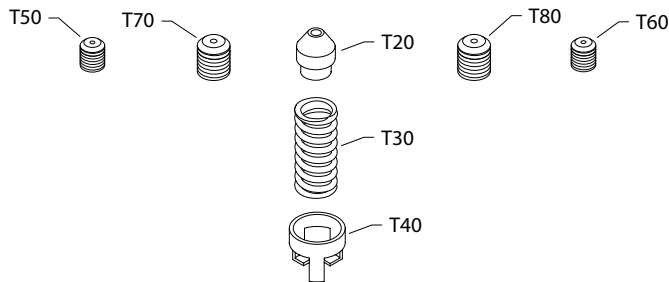
T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1

**Orifice**

**S90 100cc pump orifice 28-44**

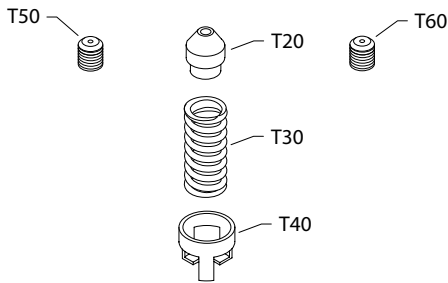
*Parts configuration*

**(28, 30)**



See control drawing  
 for orifice location

**(29, 44)**



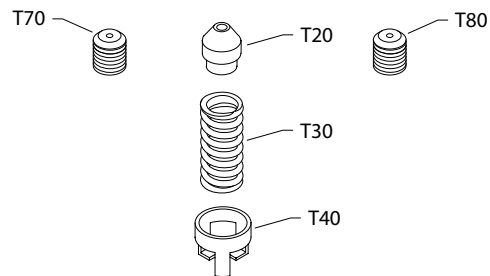
See control drawing  
 for orifice location

**(32)**



See control drawing  
 for orifice location

**(38, 40)**



See control drawing  
 for orifice location

**(34)**



See control drawing  
 for orifice location

## Orifice

Order code: 28

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
T60	87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
T70	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
T80	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1

Order code: 29

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
T60	87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1

Order code: 30

T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
T60	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
T70	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
T80	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1

Order code: 32

T50	87-42		639120	Orifice plug, 1.0mm, M5 x 6	1
T60	87-42		639120	Orifice plug, 1.0mm, M5 x 6	1

Order code 33

No parts					
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Order code 34

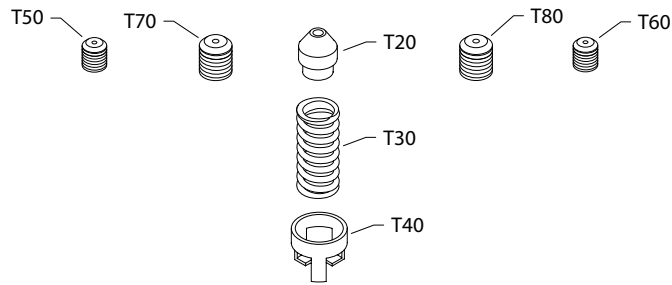
T70	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
T80	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1

[Parts continue to the next 2 pages.](#)

**Orifice**

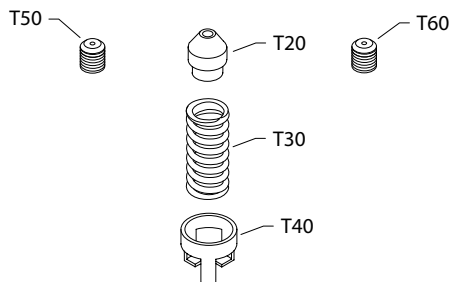
*Parts configuration*

**(28, 30)**



See control drawing  
 for orifice location

**(29, 44)**



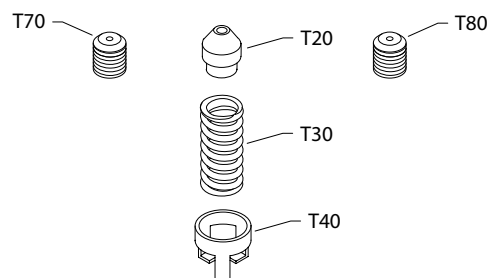
See control drawing  
 for orifice location

**(32)**



See control drawing  
 for orifice location

**(38, 40)**



See control drawing  
 for orifice location

**(34)**



See control drawing  
 for orifice location

## Orifice

Order code: 38

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		716837	Orifice plug, 0.6mm, M8 x 8	1
T80	87-42		716837	Orifice plug, 0.6mm, M8 x 8	1

Order code: 40

T20	87-42		11061970	Orifice check valve, 1.02mm	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
T80	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1

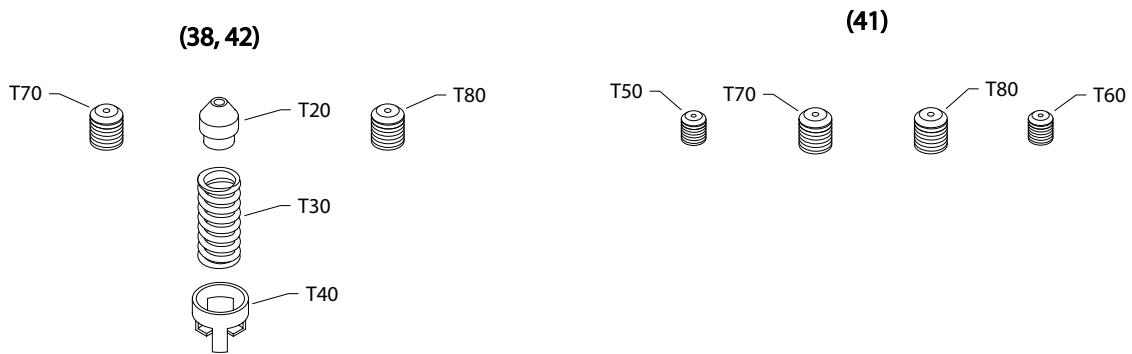
Order code: 44

T20	87-42		11061981	Orifice check valve, 1.37mm	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1

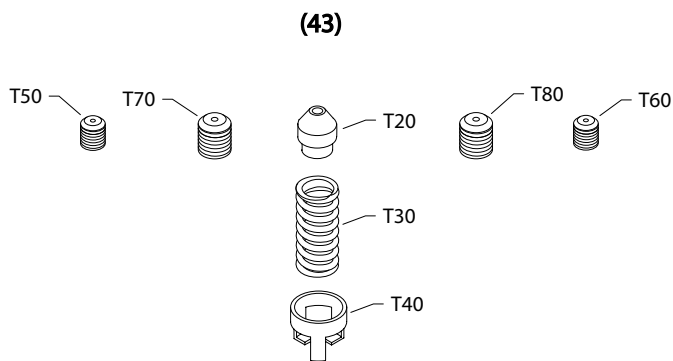
**Orifice**

**S90 100cc pump orifice 45-99**

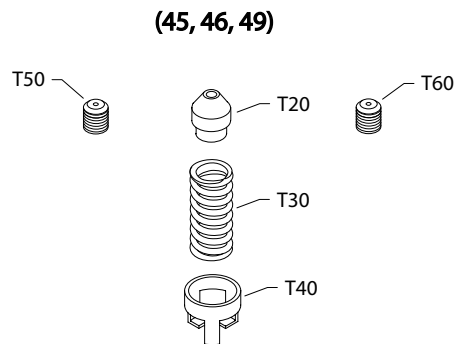
*Parts configuration*



See control drawing  
for orifice location



See control drawing  
for orifice location



See control drawing  
for orifice location



## Orifice

Order code: 45

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1

Order code: 46

T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1

Order code: 49

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1

Order code: 50

T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
T70	87-42		517571	Orifice plug, 0.9mm, M6 x 6	1
T80	87-42		517571	Orifice plug, 0.9mm, M6 x 6	1

Order code: 64

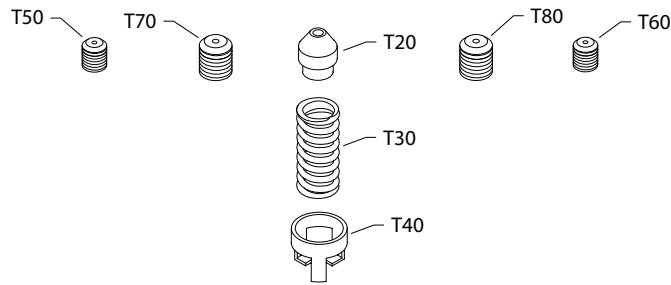
T50	87-42		617159	Orifice plug, 1.8mm, M5 x 6	1
T60	87-42		617159	Orifice plug, 1.8mm, M5 x 6	1

[Parts continue to the next 2 pages.](#)

**Orifice**

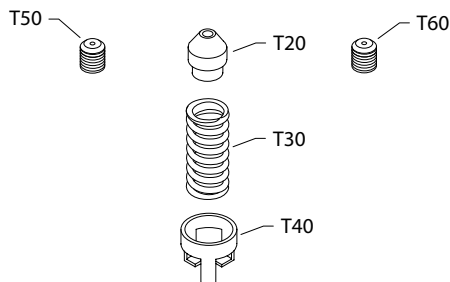
*Parts configuration*

**(28, 30)**



See control drawing  
 for orifice location

**(29, 44)**



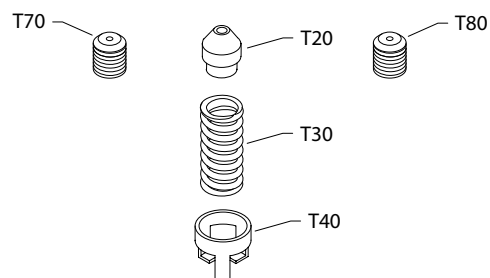
See control drawing  
 for orifice location

**(32)**



See control drawing  
 for orifice location

**(38, 40)**



See control drawing  
 for orifice location

**(34)**



See control drawing  
 for orifice location

## Orifice

Order code: 76

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
T80	87-42		578542	Orifice plug, 0.9mm, M6 x 8	1

Order code: 77

No parts

Order code: 82

T50	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
T70	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
T80	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1

Order code: 84

T70	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
T80	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1

Order code: 99

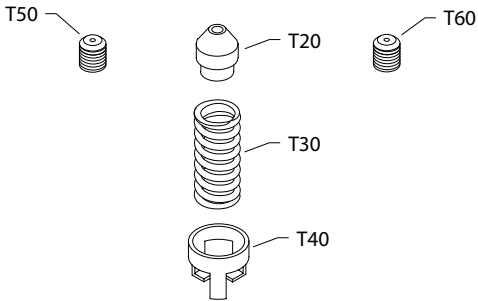
T20	87-42		8801301	Orifice check valve, .047"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		517572	Orifice plug, 1.5mm, M6 x 6	1
T80	87-42		517572	Orifice plug, 1.5mm, M6 x 6	1

**Orifice**

**S90 100cc pump orifice A3-C1**

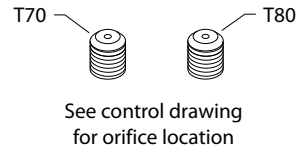
*Parts configuration*

**(A3)**



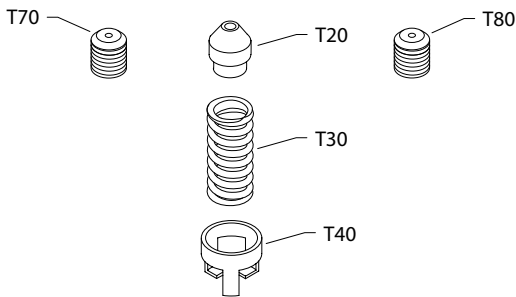
See control drawing  
 for orifice location

**(A4)**



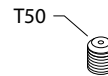
See control drawing  
 for orifice location

**(A5, A8, C1)**



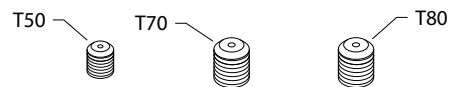
See control drawing  
 for orifice location

**(B1, B7, B8, B9)**



See control drawing  
 for orifice location

**(B3, BB)**



See control drawing  
 for orifice location

## Orifice

Order code: A3

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
T60	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1

Order code: A4

T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
T80	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1

Order code: A5

T20	87-42		11061970	Orifice check valve, 0.40"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
T80	87-42		578542	Orifice plug, 0.9mm, M6 x 8	1

Order code: A8

T20	87-42		11061970	Orifice check valve, 0.40"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		508014	Orifice plug, 1.0mm, M6 x 8	1
T80	87-42		508014	Orifice plug, 1.0mm, M6 x 8	1

Order code: B1

T50	87-42		507042	Orifice plug, 1.5 mm, M6 x 8	1
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Order code: B2

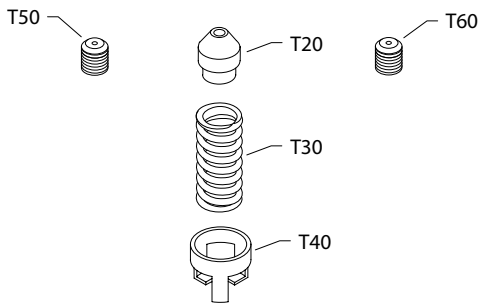
T70	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
T80	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

[Parts continue to the next 2 pages.](#)

**Orifice**

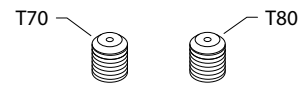
*Parts configuration*

**(A3)**



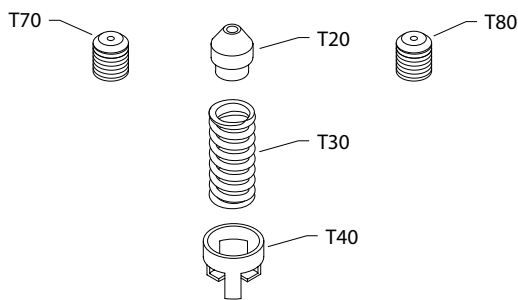
See control drawing  
 for orifice location

**(A4)**



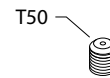
See control drawing  
 for orifice location

**(A5, A8, C1)**



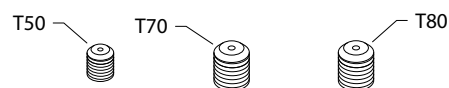
See control drawing  
 for orifice location

**(B1, B7, B8, B9)**



See control drawing  
 for orifice location

**(B3, BB)**



See control drawing  
 for orifice location

## Orifice

Order code: B3

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T50	87-42		507042	Orifice plug, 1.5mm, M6 x 8	1
T70	87-42		739144	Orifice plug, 0.8mm, M6 x 6	1
T80	87-42		739144	Orifice plug, 0.8mm, M6 x 6	1

Order code: B7

T50	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
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Order code: B8

T50	87-42		508014	Orifice plug, 1.0mm, M6 x 8	1
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Order code: B9

T50	87-42		516598	Orifice plug, 1.2mm, M6 x 8	1
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Order code: BB

T50	87-42		507042	Orifice plug, 1.5mm, M6 x 8	1
T70	87-42		507042	Orifice plug, 1.5 mm, M6 x 8	1
T80	87-42		507042	Orifice plug, 1.5 mm, M6 x 8	1

Order code: C1

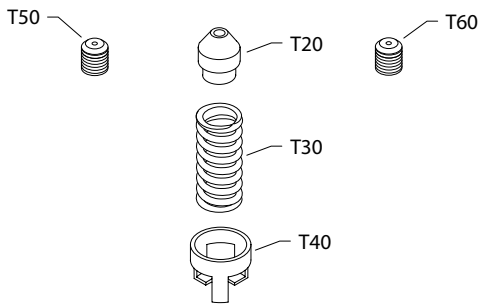
T20	87-42		8801139	Orifice check valve, 0.26"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
T80	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1

**Orifice**

**S90 100cc pump orifice C3-GD**

*Parts configuration*

**(C3, C5, C6, C7)**



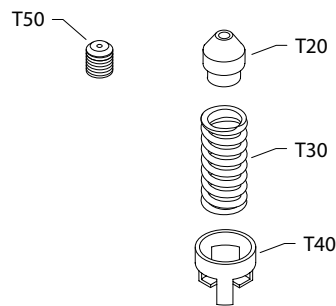
See control drawing  
 for orifice location

**(C4)**



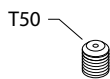
See control drawing  
 for orifice location

**(G4, G8, GB, GD)**



See control drawing  
 for orifice location

**(G1)**



See control drawing  
 for orifice location



## Orifice

### Order code: C3

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		8801139	Orifice check valve, 0.26"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		11061989	Orifice plug, 1.3mm, M5 x 6	1
T60	87-42		11061989	Orifice plug, 1.3mm, M5 x 6	1

### Order code: C4

T50	87-42		639161	Orifice plug, 1.4mm, M5 x 6	1
T60	87-42		639161	Orifice plug, 1.4mm, M5 x 6	1

### Order code: C5

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
T60	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1

### Order code: C6

T20	87-42		11061970	Orifice check valve, 0.40"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
T60	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1

### Order code: C7

T20	87-42		11061981	Orifice check valve, 1.37 mm	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
T60	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1

### Order code: G1

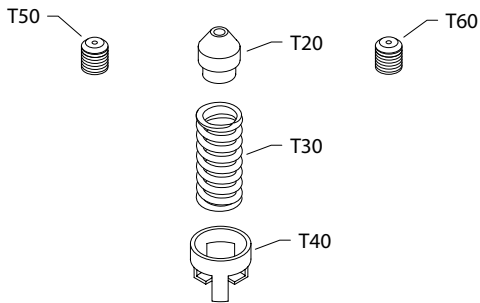
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
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[Parts continue to the next 2 pages.](#)

## Orifice

### Parts configuration

#### (C3, C5, C6, C7)



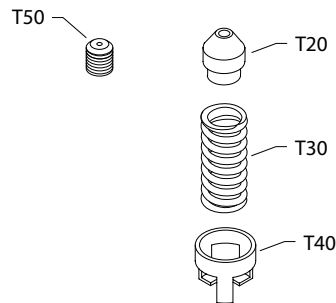
See control drawing  
for orifice location

#### (C4)



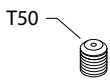
See control drawing  
for orifice location

#### (G4, G8, GB, GD)



See control drawing  
for orifice location

#### (G1)



See control drawing  
for orifice location

## Orifice

Order code: G4

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		8801136	Orifice check valve, .018"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

Order code: G8

T20	87-42		8801139	Orifice check valve, .026"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

Order code: GB

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

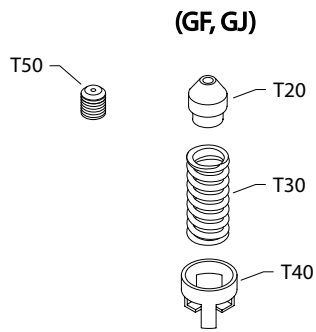
Order code: GD

T20	87-42		11061993	Control orifice kit, 1.57 mm	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

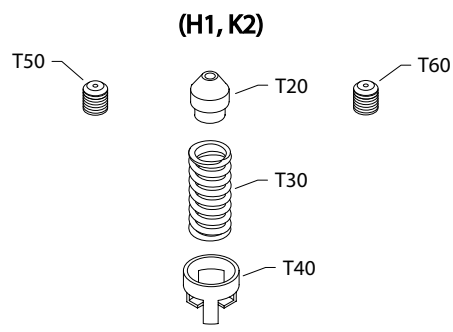
**Orifice**

**S90 100cc pump orifice GF-Z3**

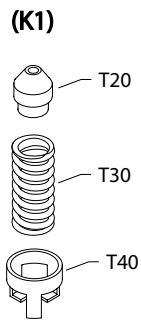
*Parts configuration*



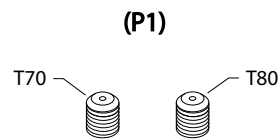
See control drawing  
 for orifice location



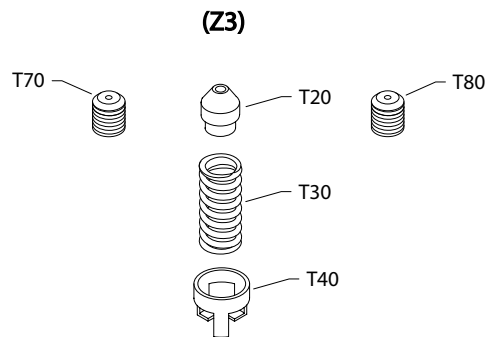
See control drawing  
 for orifice location



See control drawing  
 for orifice location



See control drawing  
 for orifice location



See control drawing  
 for orifice location

## Orifice

Order code: GF

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
T20	87-42		11061970	Control orifice kit, 0.040"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

Order code: GJ

T20	87-42		11061981	Control orifice kit, 1.37 mm	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1

Order code: H1

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
T60	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1

Order code: K1

T20	87-42		11061981	Orifice check valve, 1.37 mm	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1

Order code: K2

T20	87-42		11061958	Orifice check valve, .032"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T50	87-42		639104	Orifice plug, 0.7mm, M5 x 6	1
T60	87-42		639104	Orifice plug, 0.7mm, M5 x 6	1

Order code: P1

T70	87-42		508014	Orifice plug, 1.0 mm, M6 x 8	1
T80	87-42		508014	Orifice plug, 1.0 mm, M6 x 8	1

Order code: Z3

T20	87-42		11061970	Orifice check valve, .040"	1
T30	87-42		679506 (8700007)	Spring	1
T40	87-42		8801303	Spring retainer	1
T70	87-42		519659	Orifice plug, 1.0 mm, M6 x 6	1
T80	87-42		519659	Orifice plug, 1.0 mm, M6 x 6	1

## Overhaul seal kit

### S90 100cc pump overhaul seal kit

#### Overhaul seal kit

Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
Q210	87-42		11095649	Overhaul seal kit	1
B90	87-42		9803390	Control screen	3
C70	88-22		314419 (9007276-0114)	Screw ( <a href="#">SB-1988-016</a> on page 259 & <a href="#">SB-1998-041</a> on page 292)	4
E40	87-02		505412 (9003509-0008)	Seal nut	2
E50	87-02		517378 (9004104-1620)	O-ring	1
E60	87-02		517228 (5000206)	Screw ( <a href="#">SB-1994-018</a> on page 279)	6
F11	87-02		9004100-1310	O-ring	2
F12	87-02		507799 (8700067)	Piston ring	2
F40	87-02		363754 (9004104-0350)	O-ring	2
F50	89-41		9004104-0340	O-ring	2
F112	87-02		505412 (9003509-0008)	Seal nut	1
F124	87-02		066159	Seal nut	1
F212	87-02		505412 (9003509-0008)	Seal nut	1
F224	87-02		066159	Seal nut	1
G30	89-46		8200212	End cap gasket ( <a href="#">SB-1992-003</a> on page 270)	1
J40	87-02		680892 (9004104-0440)	O-ring	1
J50	87-02		056739 (9004104-1580)	O-ring	1
K50	87-02		001149 (9004201-6200)	O-ring	1
L25	87-02		521722	Seal carrier assembly ( <a href="#">SB-2007-018</a> on page 311)	1
N15	87-02		001172 (9004201-9000)	O-ring	1
N98	87-02		9004104-0320	O-ring	1
P02	87-02		688721 (9004104-0170)	O-ring	2
P06	87-02		071811	O-ring	2
P13	87-02		544742 (9004105-0190)	O-ring	2
P20	87-02		9004105-0160	O-ring	2
P21	87-02		9006110-0160	O-ring	2

## Service bulletin

### **AN152886483362**

To improve efficiency and reliability, the number of parts in series 90 pumps is being reduced. The charge pump design on 55cc - 130cc frame sizes is being changed so that the outer port plate is an integral part of the charge pump cover and distance plates are eliminated. The change is taking effect at the following manufacturing dates:

- 55cc: 93-10
- 75cc: 93-10
- 100cc: 93-15
- 130 cc:93-34

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked as either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Danfoss.

The old design charge pump hardware is obsolete and is no longer available. Refer to the chart on the next page to determine the replacement kit.

## Service bulletin

### AN152886483362 charge pump replacements

The following information must be known to determine the correct charge pump replacement kit:

1. Unit size (055, 075, 100, or 130cc)
2. Charge pump displacement (11, 14, 17, 20, 26, or 34cc)
3. Auxiliary pad (Yes or No)
4. Rotation (LH or RH)

Obsolete Charge Pump Parts			Unit Size	Charge pump displacement	Auxiliary pad	Rotation	Replacement kit
Gear Set	Shaft	Cover					
8000169	8000174	8800513	055	11 cc	No	LH or RH	8510028
		8800514			Yes	LH	8510029
		8800514			Yes	RH	8510030
8000170	8000174	8800513	055	14 cc	No	LH or RH	8510031
		8800514			Yes	LH	8510032
		8800514			Yes	RH	8510033
8000171	8000174	8800513	055	17 cc	No	LH or RH	8510034
		8800514			Yes	LH	8510035
		8800514			Yes	RH	8510036
8100313	337956	8800513	075	14 cc	No	LH or RH	8510037
		8800514			Yes	LH	8510038
		8800514			Yes	RH	8510039
8100314	337956	8800513	075	17 cc	No	LH or RH	8510040
		8800514			Yes	LH	8510041
		8800514			Yes	RH	8510042
8100315	337956	8800513	075	20 cc	No	LH or RH	8510043
		8800514			Yes	LH	8510044
		8800514			Yes	RH	8510045
8200158	337956	8800513	100	17 cc	No	LH or RH	8510046
		8800514			Yes	LH	8510047
		8800514			Yes	RH	8510048
8200159	337956	8800513	100	20 cc	No	LH or RH	8510049
		8800514			Yes	LH	8510050
		8800514			Yes	RH	8510051
8200160	337956	8800513	100	26 cc	No	LH or RH	8510052
		8800514			Yes	LH	8510053
		8800514			Yes	RH	8510054
714444	303636	347518	130	20 cc	No	LH or RH	8510064
		347526			Yes	LH	8510065
		347526			Yes	RH	8510066
714451	303636	347518	130	26 cc	No	LH or RH	8510067
		347526			Yes	LH	8510068
		347526			Yes	RH	8510069
714469	303636	347518	130	34 cc	No	LH or RH	8510070
		347526			Yes	LH	8510071
		347526			Yes	RH	8510072



## Service bulletin

### SB-1988-009

#### Products affected

Series 90 pumps

#### Subject

Servo arm change

#### Description

As a product improvement, Danfoss has changed the series 90 pump servo arm and swashplate (item D10 and D50). The old style servo arm and swashplate will become obsolete. Because this change creates non-interchangeability between new and old swashplates, servo arms, and possibly servo piston (item S10) and slider block (item F20), separate servo arms and swashplates will no longer be sold as service parts.

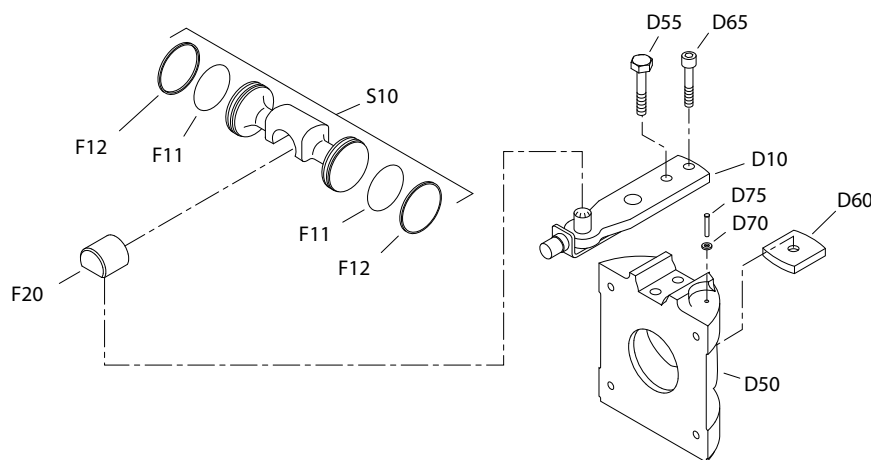
Also, the new servo arm is pressed into a groove in the new swashplate. This situation requires special tooling for assembly, therefore, pre-assembled kits will be created for 55, 75, and 100 cc pumps. The kits will work in any vintage pump.

The kit for 55 cc pumps will include all the items in the figure, except item S10

The kit for 75 cc pumps will include all items in the figure.

The kit for 100 cc pumps will include all items in the figure, except items S10 and F20.

The slider block (item F20) in 55 cc pumps and the slider block and the servo piston (item S10) in 75 cc pumps had to be changed slightly to allow clearance for the new servo arm. The new servo piston and slider block will work in any vintage pump.



#### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

#### Serial numbers

Change goes into effect with s/n 88-14-xxxxx on 55 cc pumps and with s/n 88-16-xxxxx for 75 cc and 100 cc pumps

## Service bulletin

### Part numbers affected

- New 55 cc slider block is p/n 8000189
- New 75 cc slider block is p/n 8100368
- New 100 cc slider block is p/n 8100369
- New 55 cc servo arm/swashplate kit is p/n 8000201
- New 75 cc servo arm/swashplate kit is p/n 8100377
- New 100 cc servo arm/swashplate kit is p/n 8200192

### Parts disposition

Non-interchangeable

**Service bulletin**

**SB-1988-016**

**Products affected**

Series 90 pumps

**Subject**

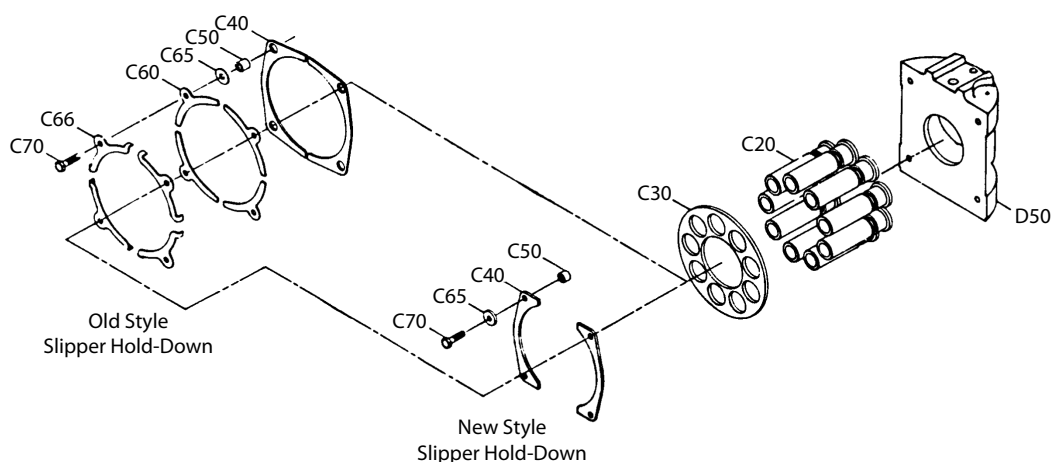
Change to fix clearance slipper hold down.

**Description**

As a product improvement, Danfoss has simplified the design of the series 90 pump slipper hold down mechanism. The hold down changes from spring loaded with a fixed maximum clearance design.

The leaf spring (item C60) and spring aligner (item C66) will be eliminated and will not be available as service parts. The spacer (item C50), bearing (item C40), and washer (item C65) will change and the old part numbers will not be available as service parts. The swashplate (item D50), pistons (item C20), slipper retainer (item C30), and screws (item C70) will remain the same.

If any of the affected parts (item C66, C60, C65, C50, or C40) require replacement during repair of older style pumps, discard these parts and rebuild using new style parts (items C40, C50, and C65). As before, the screws (item C70) which are coated with locking compound MUST always be replaced after removal.



**Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

- 55 cc pumps, 94-2xxx, changed at s/n 88-43-xxxxx
- 75 cc pumps, 95-2xxx, changed at s/n 88-22-xxxxx
- 100cc pumps, 96-2xxx, changed at s/n 88-20-xxxxx

**Part numbers affected**

Item	Qty/pump	55cc	75cc	100cc
C40	2	8000137	8100294	8200144
C50	4	8000138	8100295	8200145

**Service bulletin**

Item	Qty/pump	55cc	75cc	100cc
C65	4	9009625-0159	9009625-0159	9009625-0159
C70	4	314419 (9007276-0114)	9007276-0099	9007276-0099

**Parts disposition**

Non-interchangeable as individual parts, but new style C40, C50, and C65 can be used in any vintage pump, if all three are changed.

**Service bulletin**

**SB-1988-023**

**Products affected**

Series 90 pumps and motors

**Subject**

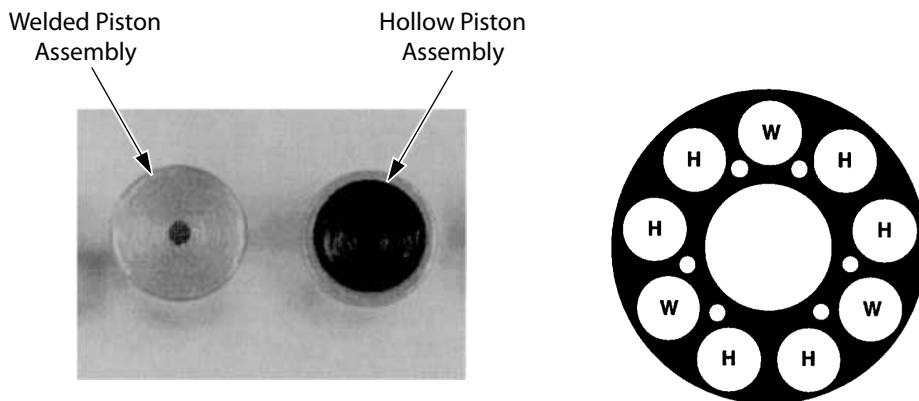
Piston improvement

**Description**

Product Information Bulletin PIB-8801 (March, 1988) announced the incorporation of fabricated (welded) piston assemblies, replacing non-fabricated (hollow) piston assemblies, in the cylinder blocks of all Series 90 pumps and motors. This change increases the overall efficiency of the Series 90 product line.

To simplify service parts inventory for all Series 90 units, only individual welded piston assemblies will be available as spare parts. The hollow pistons will be obsolete. Part numbers for individual welded piston assemblies are listed in this bulletin.

Since all Series 90 pumps and motors have nine (9) pistons, welded pistons being used to replace hollow pistons during repair **MUST** be install in the cylinder block symmetrically, in multiples of three (3).



When replacing hollow pistons with welded pistons, it is mandatory that the welded pistons be incorporated symmetrically in multiples of three.

**Models affected**

All series 90 pumps and motors: 93-xxxx, 94-xxxx, 95-xxxx, and 96-xxxx pumps

**Serial numbers**

Welded pistons will be incorporated into all series 90 pumps and motors by the end of the first quarter of 1998.

**Part numbers affected**

Part number	Description
706101	Piston assembly, welded - 42 cc
367672	Piston assembly, welded - 55 cc
708230	Piston assembly, welded - 75 cc
364000	Piston assembly, welded - 100 cc

**Service bulletin**

**Parts disposition**

Interchangeable

## Service bulletin

### SB-1989-002

#### Products affected

Series 90 pumps

#### Subject

Incorporation of adjustable charge relief valve

#### Description

As a product improvement Danfoss is incorporating an adjustable charge relief valve on all series 90 variable displacement pumps. This design replaces the previous shim adjustable charge relief valve. The new design valve provides a range of pressure adjustment which covers the available charge pressure options of 290, 348, and 406 psi [20, 24, and 28 bar].

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*This improvement changes the design of the charge relief valve poppet and plug. The new style charge relief may protrude from the pump end cap approximately 0.27 in [6.9 mm] farther than the adjustable relief valve.*

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To adjust the new design valve, first install a gauge to measure charge pressure as described in the series 90 service manual. Loosen the adjustment lock nut with a 1-1/16 in hex wrench. Operate the pump at an input speed of 1700 to 2000 rpm and turn the adjustment plug with a large screwdriver while observing the charge pressure. Clockwise rotation of the plug increases the setting, while counterclockwise rotation decreases the setting at a rate of approximately 50 psi [3.4 bar] per turn. Once the desired setting is achieved, torque the lock nut to 34-41 lbf-ft [46-55 Nm], and remove the charge pressure gauge.

Danfoss will offer an adjustable charge relief valve kit for sale as a service part. This kit can be used to service any vintage series 90 variable pump. Since the new and old style charge relief valves are interchangeable as an assembly, the old style parts will no longer be available as service parts.

#### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx pumps

#### Part numbers affected

Part number	Description
8002K000-A	Adjustable charge relief valve kit - new style (includes poppet, spring, plug, O-ring, and nut)

#### Parts disposition

Interchangeable (as an assembly)

**Service bulletin**

**SB-1989-003**

**Products affected**

Series 90 pumps

**Subject**

Swashplate leveler spring seat change and servo pressure relief valve deletion

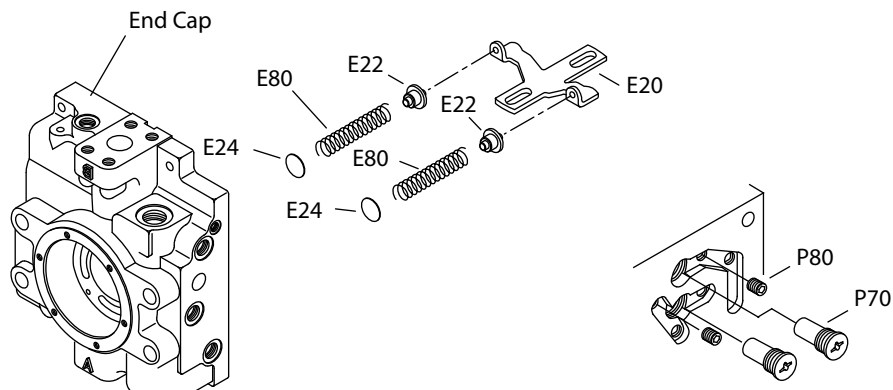
**Description**

As a product improvement, Danfoss is adding hardened shims between the swashplate leveler springs and the end cap in series 90 variable pumps. In addition, the leveler spring seats have been hardened, and are now separate pieces from the leveler. Previously, the seats were peened to the leveler.

These improvements require some minor changes in the repair procedures for the series 90 pumps. When installing the lever springs (E80), take care that the spring seats (E22) are in position on the swashplate leveler (E20). Before installing the end cap, assemble the hardened shims (E24) into their pockets in the end cap and retain with petroleum jelly.

In an unrelated change, the servo pressure check relief valves installed in the pump end cap (or rotation valve housing) are no longer required. These valves (P70) will be replaced by standard socket head, straight thread O-ring plugs.

The swashplate leveler, plus the separate spring seats, are directly interchangeable with the old design part. When performing major repairs on any series 90 pump, the hardened shims should be installed between the lever springs and the end cap. The plugs are also interchangeable with the servo pressure check relief valves.



**Models affected**

All 93-2xxx (42 cc), 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

The hardened swashplate leveler spring seats and hardened shims incorporated at serial number 89-09-xxxx. Due to the interchangeability of the straight thread plugs with the servo pressure check relief valves, this change will be incorporated during the 1st quarter of 1989.

**Part numbers affected**

Item	Description	Qty	42cc	55cc	75cc	100cc
E20	Leveler	1	673897	8000094	8100130	8200007
E22	Spring seat	2	358820	358838	358523	358846



### Service bulletin

Item	Description	Qty	42cc	55cc	75cc	100cc
E24	Shim	2	359034	359042	359042	359059
P70	Plug	2	9005110-4400	9005110-4400	9005110-4400	9005110-4400

### Parts disposition

Non-interchangeable

**Service bulletin**

**SB-1989-006**

**Products affected**

Series 90 pumps

**Subject**

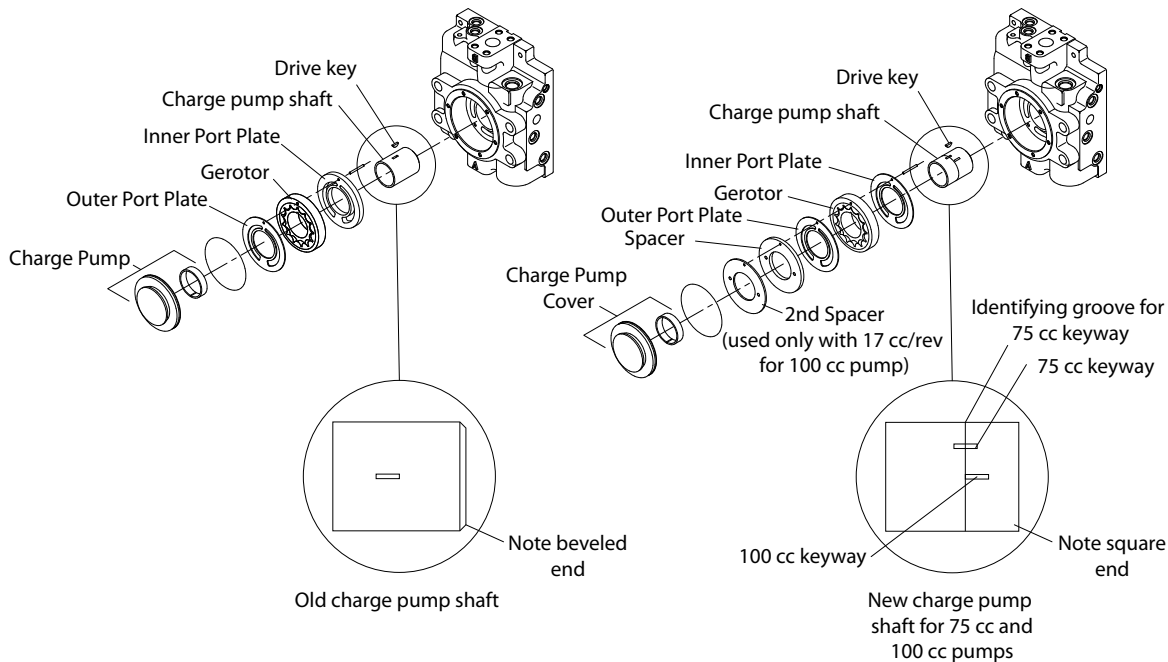
Charge pump design change

**Description**

The original series 90 charge pump design included two (2) port plates, one (1) on each side of the gerotor. If the charge pump displacement was less than the maximum available for the pump's frame size, the inside port plate was thicker than the 0.050 in. (1.27 mm) outside port plate.

The new design charge pump will always have two (2) 0.050 in (1.27 mm) thickness port plates, one (1) on each side of the gerotor. Additionally, if the charge pump displacement is less than the maximum available for the pump's frame size, one (1) or two (2) spacers were install between the outside port plate and the charge pump cover.

In addition, the location of the keyway in the charge pump shaft has been changed to ensure full engagement of the drive key in the gerotor. The new charge pump shaft used in 75 and 100 cc pumps has two (2) keyways. The rear keyway (farthest from the end cap and splined end of the shaft) is used for 75 cc pumps, while the front keyway is used for 100 cc pumps. The new style charge pump shafts for 55, 75, and 100 cc pumps also changed from having a beveled end to a square end on the end closest to the pump end cap.



**Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

## Service bulletin

### Serial numbers

- A-89-17-xxxxx for all pumps manufactured in Ames, Iowa.
- N-89-07-xxxxx for all 95-2xxx (75 cc) pumps manufacture in Neumunster, West Germany.
- N-88-48-xxxxx for all 96-2xxx (100 cc) pumps manufacture in Neumunster, West Germany.

### Part numbers affected

Proper part number versus pump serial number information can be found in the series 90 Parts Manuals.

The thicker inside port plates (thicker than 0.050 in (1.27 mm)) will be obsoleted and no longer available as service parts. If these parts require replacement, use the 0.050 in. 1.27 mm) port plate and appropriate spacer(s) as service parts. On 100 cc pumps only, the new charge pump shaft must be used if the new style spacer is used on 55 and 75 cc pumps, the charge pump shaft clearance pocket in the end cap changed from a beveled to a straight corner to correspond with the change in the charge pump shaft. Old style charge pump shafts will remain available as service parts and must be used in the 55 and 75 cc beveled pocket end caps.

Old style (beveled pocket) end caps will be obsoleted and no longer available as service parts. If an old style end cap needs replacement, new style end caps can be used with any vintage charge pump hardware and charge pump shaft.

### Parts disposition

Non-interchangeable- must use correct charge pump shaft per serial number of pump

**Service bulletin**

**SB-1989-023**

**Products affected**

Series 90 100cc variable pumps

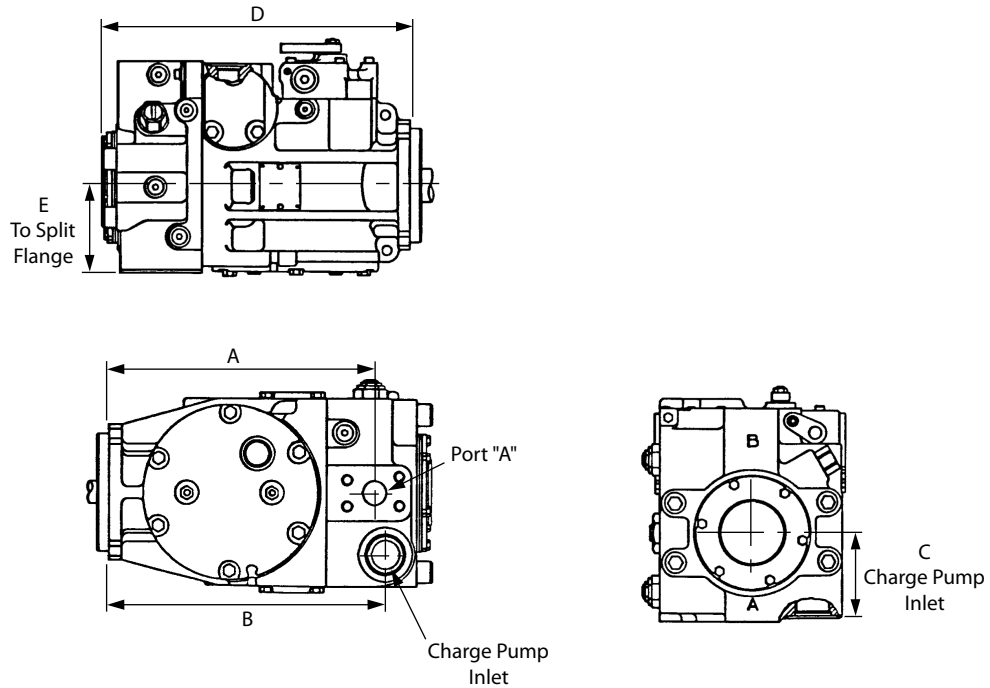
**Subject**

Reduction in overall length

**Description**

To improve application flexibility, the overall length of series 90 100 cc pumps will be reduced by .39" [10 mm]. Some port locations will also change.

Shown below are all dimensional differences between the current and new design pumps.



Dim	Old	New
A	11.22" [285 mm]	10.94" [277.9 mm]
B	11.73" [297.9 mm]	11.34" [288 mm]
C	3.64" [92.5 mm]	3.53" [89.7 mm]
D*	13.73" [348.7 mm]	13.34" [338.8 mm]
E	3.87" [98.3 mm]	3.75" [95.3 mm]

\* All dimensions from the mounting face to an auxiliary pump will also be reduced by .39" [10 mm].

**Models affected**

All 96-2xxx variable pumps

**Serial numbers**

This change will take place at the serial number A-89-46-xxxx

## Service bulletin

### Part numbers affected

Non-interchangeability will exist with drive shafts, which become shorter with this change, end caps, end cap gaskets, and the end cap to the variable housing retaining screws. Old style end caps will no longer be available as service parts. In the rare event that a new end cap is required, a new shaft, end cap gasket and screws will also be needed. The new part numbers are as follows:

Item	Part number	Description	Quantity
G04	8200175	End cap, side port	1
G30	8200166	Gasket	1
G90	9007210-0608	Screw	1
G95	9007210-0608	Screw	1
J80	9007314-1623	Screw	4
J80N	9007210-1621	Screw	4
L100	8200169	Shaft, 23 tooth spline	1
L100	8200170	Shaft, 13 tooth spline	1
L100	8200179	Shaft, 14 tooth spline	1
L100	8200173	Shaft, tapered	1
L100	8200176	Shaft, straight key	1

### Parts disposition

Non-interchangeable

## Service bulletin

### SB-1992-003

#### Products affected

Series 90: 55, 75, 100, 130 cc pumps

#### Subject

Block point change: components redesign

#### Description

As part of our overall series 90 product improvement program, numerous components are being redesigned. This redesign is referred to as a “block point” change. The objective of the block point change is to minimize the number of times we change the units while we convert to high volume tooling at various plant sites. These design improvements will provide increased reliability and more application flexibility. The nature of these changes makes customer re-qualification unnecessary. Old style (pre-block point) variable housings and end caps will no longer be available as spare parts.

#### Models affected

All series 90 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

#### Serial numbers

Changes will take place at the serial number 92-12-xxxxx for 100 cc pumps

#### Part numbers affected

**Housing** Thickness adjacent to the side cover has been increased

**Side cover** Thickness increased

**End cap** Match housing change; small end cap screws will be larger, orientation of charge relief valve on side port end caps has been changed from oblique to vertical.

Item	Description	Old part number	New part number
B10	Variable housing	8200117 (O)	726554
E10	Side cover	8200011	748560
F20	Slider block	8200016 (I)(O)	8200225 (I)
G93	Spacer	8800404	8800564
G94	Lifting bracket	8800401	8800565
G95	Washer	n/a	9009610-3469
B82	Plug	n/a	9005110-5600
B83	Plug	n/a	9005110-5600
G048	End cap - twin ports	8200157 (O)	8200235
G308	End cap gasket	8200166	8200212
G908	Screw	9007210-0608	9007314-0810
G958	Screw	9007314-0608	9007314-0810
G968	Screw	9007314-0607	9007314-0808
G046	End cap - side ports	8200175 (O)	8200236
G306	End cap gasket	8200166	8200212
G906	Screw	9007314-0608	9007314-0810

### Service bulletin

Item	Description	Old part number	New part number
G956	Screw	9007314-0608	9007314-0810
G968	Screw	9007314-0607	9007314-080
G172	Plug	n/a	9005110-4400
G182	Plug	n/a	9005110-4400

### Parts disposition

Non-interchangeable

**Service bulletin**

**SB-1992-011**

**Products affected**

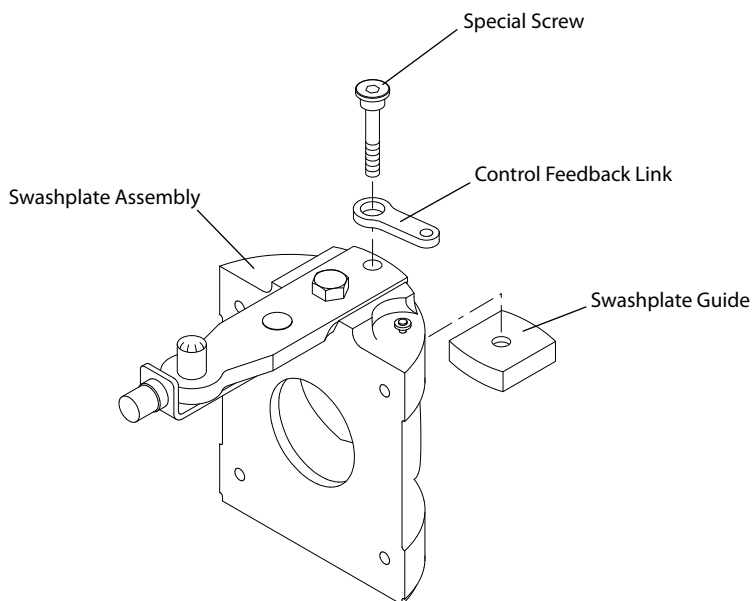
Series 90 - 055, 075, and 100 frame size pumps

**Subject**

Feedback link retention

**Description**

Effective in September of 1992, the feedback link in series 90 pumps will be mechanically retained to the swashplate. In the past, the link slipped over a specially ground socket head screw and could fall off the screw during assembly. The screw has changed to include a head to retain the link. The feedback link does not change.



**Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

Pumps with serial number A-92-38-xxxx and beyond include the new feature.

**Part numbers affected**

Frame size	Old screw	New headed screw
55 & 75 cc	9007276-0109	9007375-0044
100 cc	9007375-0030	9007375-0032

**Parts disposition**

Interchangeable



## Service bulletin

### SB-1993-001

#### Products affected

Series90 - 55, 75, and 100 cc pumps

#### Subject

Charge pump design change

#### Description

The serial numbers mentioned apply only to Ames production units. Neumunster will incorporate the change in July or August of this year.

To improve efficiency and reliability, the number of parts in series 90 charge pumps is being reduced. The charge pump design on 55 cc through 100 cc frame sizes is being changed such that the outer port plate (H30) is an integral part of the charge pump cover (J15) and distance plates are eliminated.

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Danfoss.

#### Models affected Serial numbers

All 94-2xxx, 95-2xxx, and 96-2xxx pumps

#### Serial numbers

- 55 cc: A-93-10 & beyond
- 75 cc: A-93-10 & beyond
- 100 cc: A93-15 & beyond

#### Part numbers affected

55 cc		75 cc		100 cc		Item number	Description
Before 93-10	After 93-10	Before 93-10	After 93-10	Before 93-15	After 93-15		
8000169	8000268	N/A	N/A	N/A	N/A	H05	11 cc charge pump set
8000170	8000269	8100313	8100479	N/A	N/A	H05	14 cc charge pump set
8000171	8000270	8100314	8100480	8200158	8200238	H05	17 cc charge pump set
N/A	N/A	8100315	8100481	8200159	8200239	H05	20 cc charge pump set
N/A	N/A	N/A	N/A	8200160	8200240	H05	26 cc charge pump set
8800314	N/A	8800314	N/A	8800314	N/A	H30	Port plate
N/A	Incl. in H05	N/A	Incl. in H05	8800315	Incl. in H05	H31	Port plate
8000174	8000267	337956	8100476	337956	8100476	H50	Charge pump shaft
8800513	8800834	8800513	8800834	8800513	8800834	J15N	Charge pump cover assy.
8800514	See J15L/R	8800514	See J15L/R	8800514	See J15L/R	J15	Aux. charge pump cover

### Service bulletin

55 cc		75 cc		100 cc		Item number	Description
Before 93-10	After 93-10	Before 93-10	After 93-10	Before 93-15	After 93-15		
N/A	8800833	N/A	8800833	N/A	8800833	J15L	Aux. L.H. cover assy.
N/A	8800832	N/A	8800832	N/A	8800832	J15R	Aux. R.H. cover assy.

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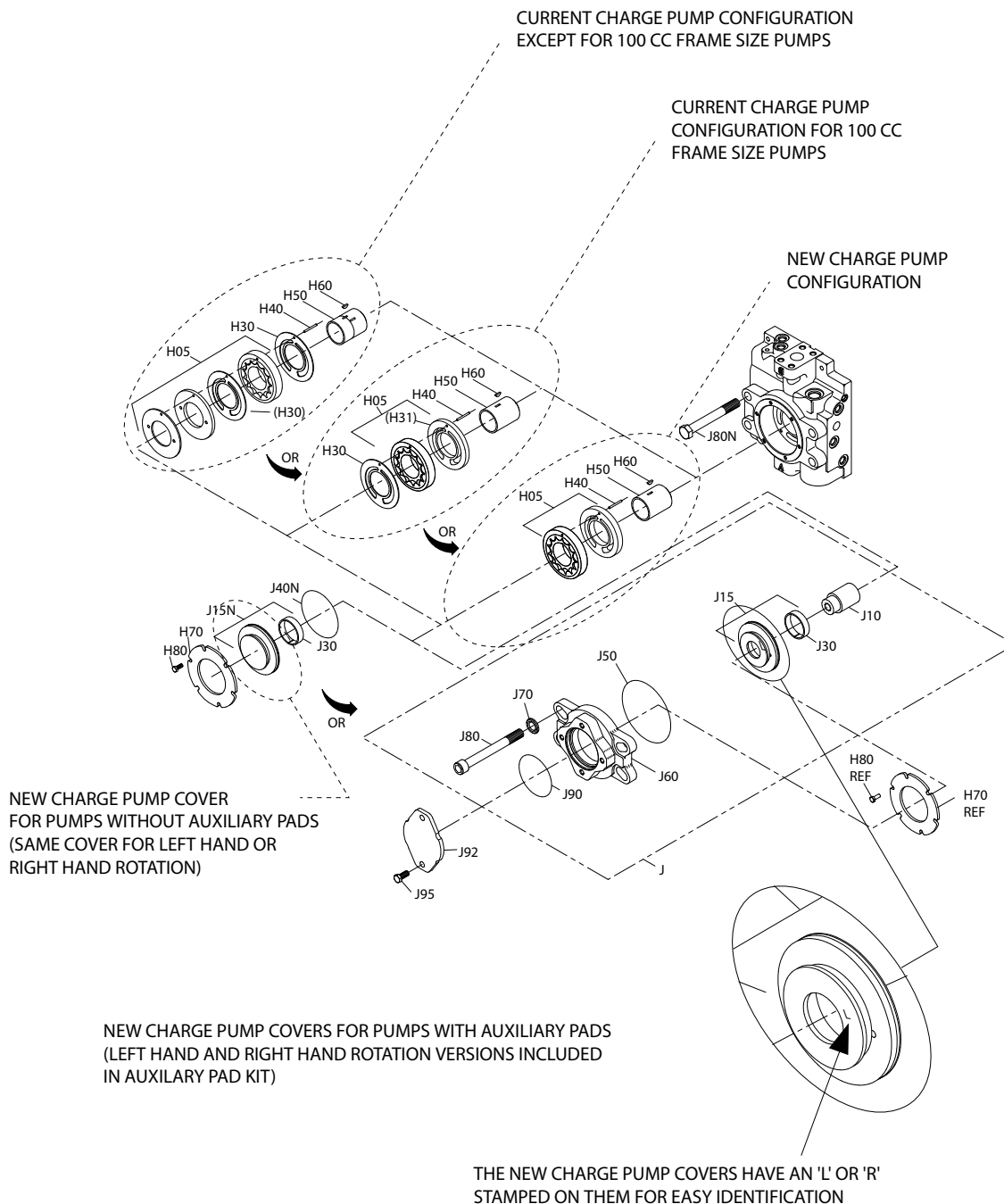
Piece parts are not interchangeable

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#### Parts disposition

Interchangeable for s/n 89-17-xxxxx and beyond. Piece parts are not interchangeable.

**Service bulletin**



**Service bulletin**

**SB-1993-015**

**Products affected**

Series 90 pump: all frame sizes

**Subject**

Servo arm interference with speed sensor ring

**Description**

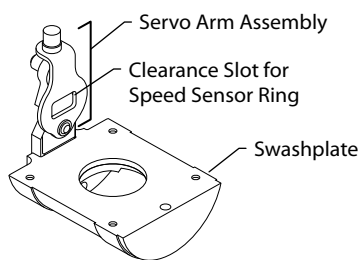
This service bulletin revision adds the 42 cc frame size and the incorporation date of 55 through 100 cc.

A potential interference problem has been identified in series 90 42, 55, 75, and 100 cc frame size pumps built since early 1992. Interference may occur between the swashplate hold down bracket on the servo arm and the speed sensor ring, which may be installed on the cylinder block as an option.

A new hold down bracket has been designed to provide clearance for the speed sensor ring.

If a cylinder block with speed ring must be installed in one of the subject pumps, a servo arm assembly with the new hold down will also be required.

Sometime during the first quarter of 1994, all 55, 75, and 100 cc pumps will be equipped with the new design hold down bracket. The 42 cc pumps will implement the new design hold down bracket in the second quarter of 1994.



**Models affected**

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx variable pumps

**Serial numbers**

- 42 cc at serial number 92-16-xxxxx
- 55 cc at serial number 92-06-xxxxx
- 75 cc at serial number 92-17-xxxxx
- 1000 cc at serial number 92-12-xxxxx

**Part numbers affected**

Frame size	Old servo arm (no slot in bracket)	New servo arm (with slot in bracket)
42 cc	354282	502976
55 cc	8000191	8000318
75 cc	8100366	8100499
100 cc	8200182	8200268

## Service bulletin

### **Parts disposition**

Non-interchangeable - Pumps with speed sensor ring must use the new servo arm.

**Service bulletin**

**SB-1994-017**

**Products affected**

Series 90 55-100cc variable pumps

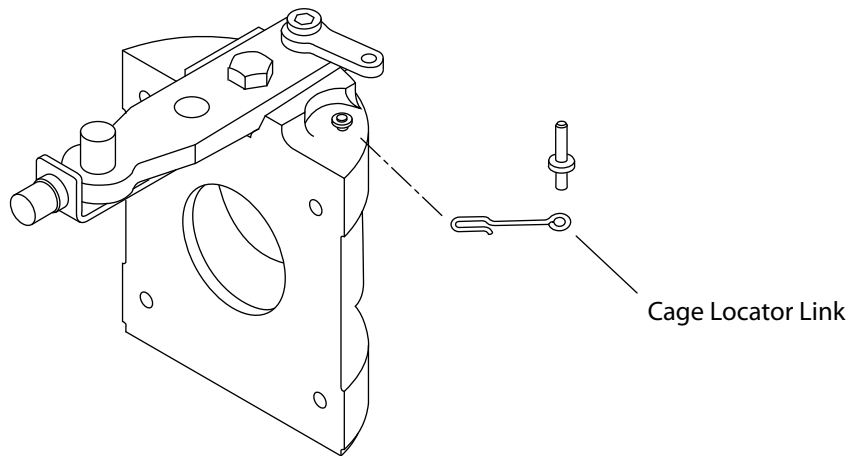
**Subject**

Swashplate cage locator

**Description**

As a product improvement, Danfoss has made a design change to the cage locator link used on the 55 thru 100 cc variable pumps.

The new link is made from square wire. In the past, the link was made from round wire, This is an interchangeable change.



**Models affected**

All 94-2xxx + 942xxx, 95-2xxx, + 952xxx and 96-2xxx + 962xxx variable pumps

**Serial numbers**

- 55 and 75 cc pumps serial number 94-18-xxxxx
- 100 cc pumps will begin 4th quarter 1994

**Part numbers affected**

Size	Old link	New link
55cc	8100241	8100506
75cc	8100241	8100506
100cc	8200108	8200273

**Parts disposition**

Interchangeable

**Service bulletin**

**SB-1994-018**

**Products affected**

Series 90 variable pumps

**Subject**

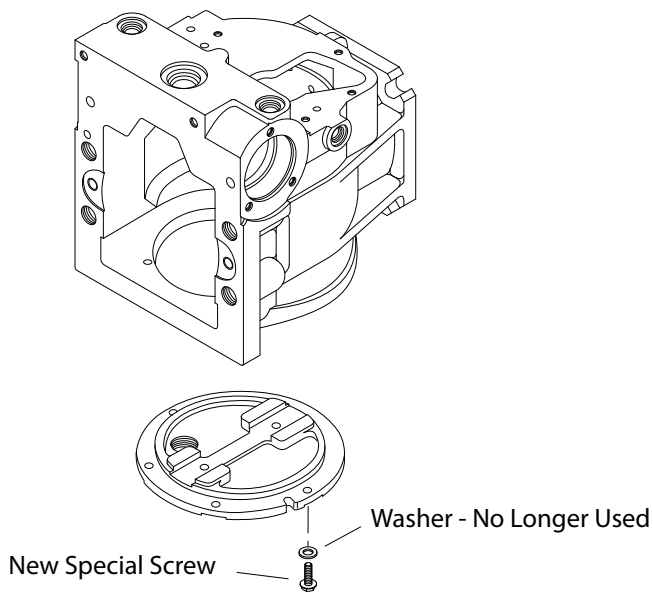
Side cover washer elimination

**Description**

The washers located under the side cover screws have been removed on all series 90 42 through 130 cc variable pumps.

As before, the side cover screws must be replaced if they are removed for any reason. The special coating, which seals and retains the screws, wears off when the screws are removed.

The screw length changed on 55 through 100 cc pumps, so it is important that the washers are discarded during repair. The proper screw is included in the overhaul seal kits.



**Models affected**

All 93-2xxx, 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

**Serial numbers**

Change took place during the quarter 2 and 3 of 1994

**Part numbers affected**

Pump size	Old screw	New screw
42 cc	648477	Same part number
55-100 cc	9007276-0115	517228 (5000206)
130 cc	308700	Same part number

**Service bulletin**

**Parts disposition**

Interchangeable



**Service bulletin**

**SB-1994-035**

**Products affected**

Series 90 100cc variable pumps

**Subject**

Elimination of housing/end cap screw

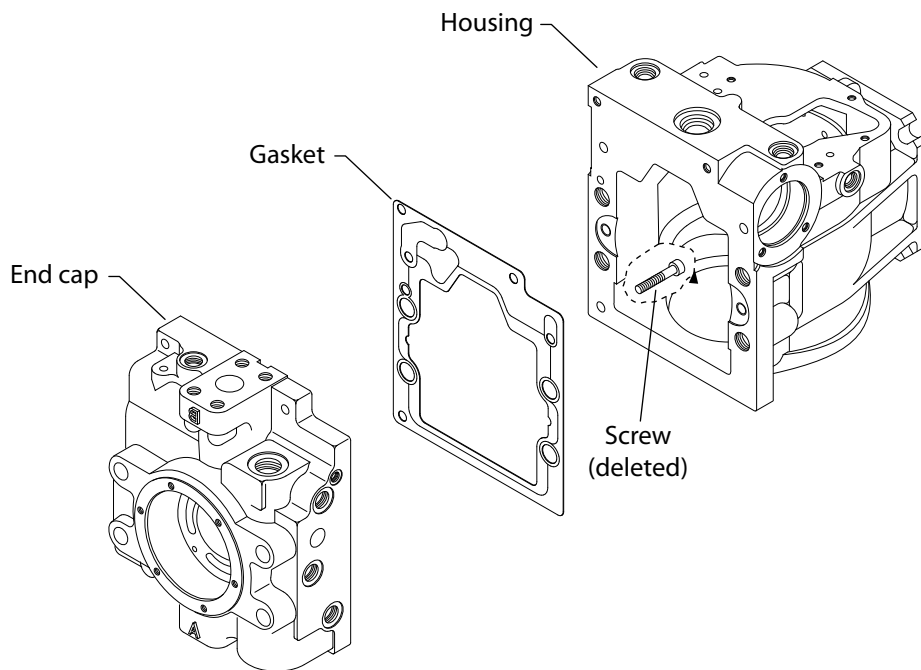
**Description**

As a product improvement, Danfoss reinforced the 100 cc pump housing, eliminating the need for the screw shown below.

The hole was not removed from the end cap gasket so it can be used with any housing/ end cap combination.

The hole was removed from the end cap, but the part number did not change. The new end cap can be used with either housing.

The old housing was obsoleted and is no longer available as a service part.



**Models affected**

All series 90 100cc variable pumps

**Serial numbers**

Change occurred at serial number 95-07-xxxxx

## Service bulletin

### Part numbers affected

Description	Part number (prior to 95-07)	Part number (95-07 & beyond)
Housing	726554	8200305
Screw	9007314-0808	no longer required

### Parts disposition

Interchangeable

**Service bulletin**

**SB-1994-36**

**Products affected**

Series 90 55 thru 130 cc variable pumps

**Subject**

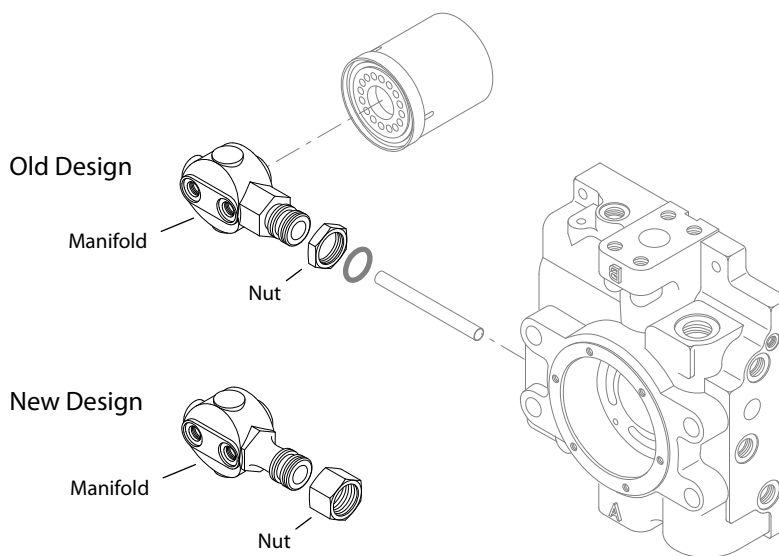
Integral filtration manifold

**Description**

As a product improvement, Danfoss is changing the integral filter manifold and bulkhead nut to make it more easily indexed.

The old bulkhead nut may be used with either the old or new filter manifold. The new bulkhead nut can only be used with the new filter manifold.

The old bulkhead nut will remain available as a service part. The old filter manifold will be obsoleted and no longer available as a service part.



**Models affected**

All series 90 55 thru 130 cc variable pumps with “L”, “M”, or “P” filtration option code

**Serial numbers**

Change occurred at serial number 95-18-xxxxx

**Part numbers affected**

Description	Part number (prior to 95-18)	Part number (after 95-18)
Filter manifold	8800200	8800896
Bulkhead nut	9002863-1600	5000222

**Parts disposition**

Interchangeable- new bulkhead nut can only be used with new filter manifold

**Service bulletin**

**SB-1995-003**

**Products affected**

Series 90 variable pumps, all frame sizes

**Subject**

Manual displacement control (MDC) with DC electric solenoid override

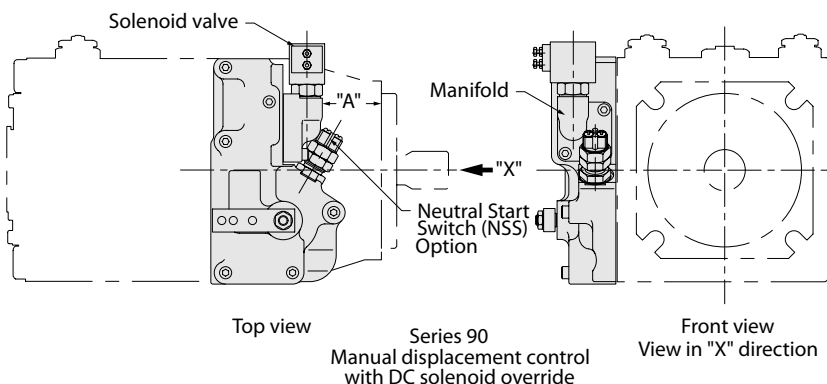
**Description**

In order to accommodate our European customers, the manifold which attaches to the front of the manual displacement control (MDC) housing is being changed.

The European solenoid valve requires a thicker manifold to provide clearance between the solenoid and the front of the MDC housing. The revised manifold will protrude closer to the mounting flange of the pump, reducing dimension "A" shown in the accompanying drawing by approximately 5 mm [0.2 in]. Please see chart below for specific clearances.

The thicker manifold requires longer screws and may be used with either the U.S. or European sourced solenoid.

This change will become effective during March of 1995. The old manifold will be obsoleted and no longer available as a service part.



Frame size		42	55	75	100	130
Dimension "A" mm [in]	Old	39.9 [1.57]	55.9 [2.20]	54.1 [2.31]	60.2 [2.37]	74.4 [2.93]
	New	34.9 [1.39]	50.9 [2.0]	49.1 [1.93]	55.2 [2.17]	69.4 [2.73]

**Models affected**

All series 90 variable pumps using MDC with DC electric solenoid override.

**Part numbers affected**

Description	Current part number	New part number	Quantity
Manifold	8800365	505022	1
Screw	9007314-0605	9007314-0606	2

**Parts disposition**

Interchangeable (new manifold requires longer screws)

**Service bulletin**

**SB-1995-025**

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

**Subject**

Side cover design change

**Description**

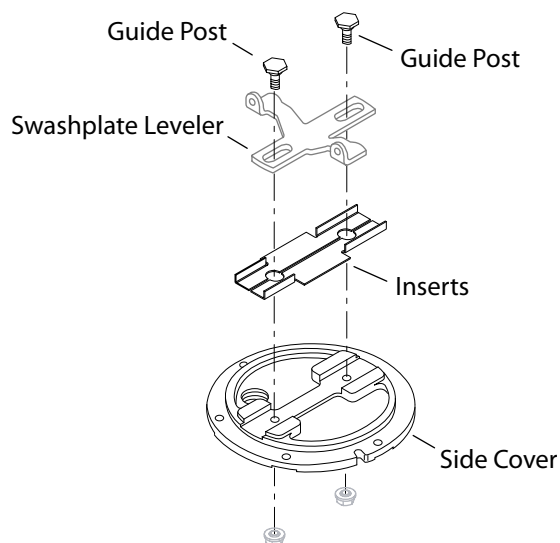
As a product improvement, Danfoss is changing the side cover and swashplate leveler ("T-bar") guide post design.

The new design side cover will have two hardened inserts in the machined slot, which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts, and inserts.

Piece parts are not interchangeable.



**Models affected**

All 55, 75, & 100 cc variable pumps

**Serial numbers**

This change became effective at serial number A-95-50-xxxxx.

## Service bulletin

### Part numbers affected

Description	Old part numbers		New part numbers		
	Guide post	Side cover	Insert assy.	Guide post	Side cover kit
55 cc	8100353	8000157	8000406	8000379	8510097
75 cc	8100353	8100226	8100562	8000379	8510098
100 cc	8100353	746560	8200321	8000379	8510099*

### Parts disposition

Interchangeable as a kit. Piece parts are not interchangeable.

**Service bulletin**

**SB-1996-009**

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

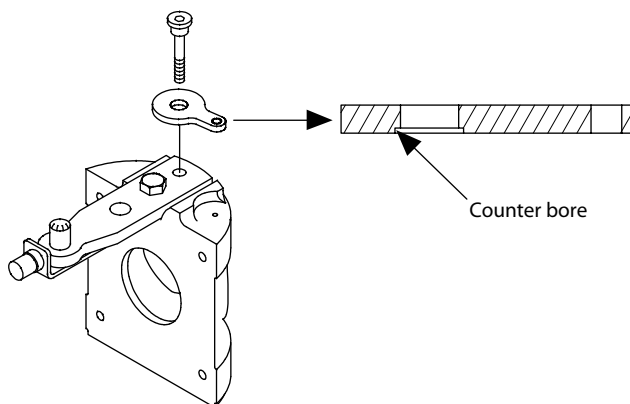
**Subject**

Change swashplate feedback link

**Description**

As a product improvement, Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

The new swashplate link has a counter bore that allows for clearance between the feedback link and the servo arm screw. The counter bore side of the link must be installed such that the counter.



**Models affected**

All 942xxx, 952xxxx, and 962xxx variable pumps

**Serial numbers**

For 55 and 75 cc pumps, the change became effective at serial number A-96-22-xxxx. For 100 cc pumps, the change became effective at serial number A-96-12-xxxx.

**Part numbers affected**

Frame size	Old part number	New part number
55cc	8000096	8000481
75cc	8000096	8000481
100cc	8200106	8200344

**Parts disposition**

Interchangeable

## Service bulletin

### SB-1997-048

#### Products affected

Series 90 100 cc variable pumps

#### Subject

Swashplate leveler assembly design change

#### Description

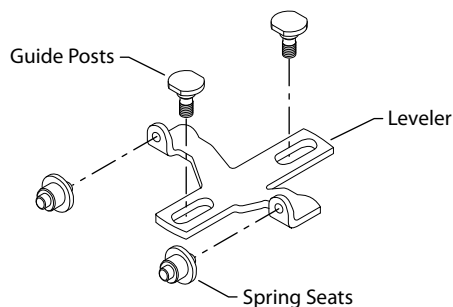
Danfoss has changed the design of the swashplate leveler, guide post, and spring seat assembly used on series 90 100 cc pumps. This change improves the serviceability of the pump by eliminating the potential for interference between the hall effect speed sensor and the swashplate leveling springs. The swashplate leveler, guide post, and spring seat designs have been optimized to produce predictable and uniform spring deflection during the assembly and operation of the pump. This change became effective on new production pumps in November of 1997.

The design optimization requires that all three parts (swashplate leveler, guide post, and spring seat) be utilized as an assembly. Danfoss recommends that all three parts be replaced when servicing any one of the parts individually. As an additional convenience Danfoss has created service kit 8510204 comprised of the side cover assembly, swashplate leveler, guide posts, and spring seats.

The previous spring seat has been obsoleted and is no longer available, therefore all three components or the service kit must be utilized when the servicing of a pump, with a serial date code prior to A-97-46-xxxx, requires a new spring seat.

The previous leveler will remain available as a service item for a period of time, however Danfoss recommends that when servicing of the leveler is required, on pumps with a serial date code prior to A-97-46-xxxx, all three components or the service kit be utilized.

The previous guide post will remain available as a service item indefinitely, due to usage within other series 90 products. Danfoss recommends that when servicing of the guide post is required, on pumps with a serial date code prior to A-97-46-xxxx, all three components or the service kit be utilized.



#### Models affected

All 96-2xxx and 962xxx variable pumps

#### Serial numbers

This change became effective at serial number 97-46-xxxx



## Service bulletin

### Part numbers affected

Description	Prior to 97-46	Service kit	Current production
Spring seat	358846	8510204	8200392
Swashplate leveler	8200007	8510204	8200395
Guide post	8000510	8510204	8000575
Side cover kit	8510099*	8510204	-

### Parts disposition

Non-interchangeable

**Service bulletin**

**SB-1998-018**

**Products affected**

Series90 55, 75, and 100 cc variable pumps

**Subject**

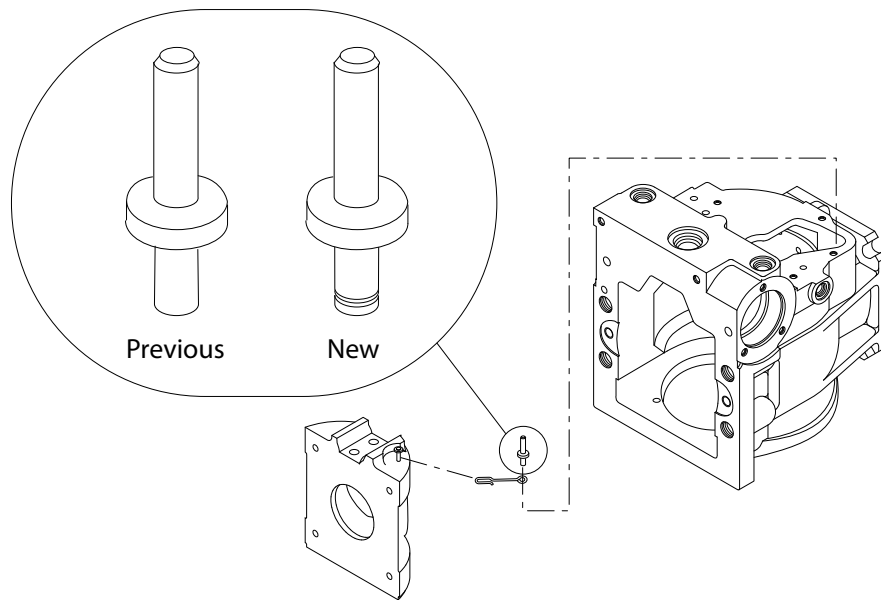
Swashplate bearing cage locator pin

**Description**

Danfoss has modified the design of the swashplate bearing cage locator pin used in the series 90 55, 75, and 100 cc variable displacement pumps.

The improved design includes a rubber gripping element on the portion of the pin that is in the main pump housing. The rubber element aids in retaining the pin in the housing during normal pump assembly and servicing procedures, by increasing the interference fit between the pin and the pilot hole in the pump housing.

To aid in identifying this change, Danfoss has released a new part number for the updated pin design. The new pin is completely interchangeable with the previous pin part number. The previous pin has been obsoleted.



**Models affected**

All 94-2xxx, 942xxx, 95-2xxx, 952xxx, 96-2xxx and 962xxx variable pumps

**Serial numbers**

This change became effective at serial number 98-24-xxxxx

**Part numbers affected**

*Pin part number*

Prior to 98-24	98-24 and on
8100235	8801135

**Service bulletin**

**Parts disposition**

Interchangeable

## Service bulletin

### SB-1998-041

#### Products affected

Series 90 55, 75, and 100 cc variable pumps, Series 90 55 and 75 cc variable motors

#### Subject

Piston hold down mechanism design change

#### Description

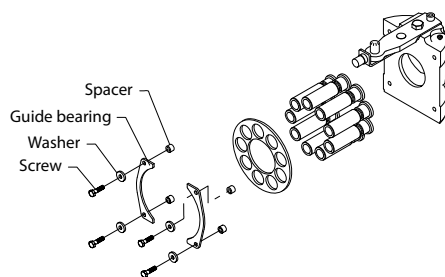
Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

Previously, the hold down assembly consisted of a spacer, slipper guide bearing, washer, and screw. The spacer provides a fixed amount of operational clearance for the slipper and slipper retainer. The guide bearing provides a wear surface for the slipper retainer, while the hold down screws and washers retain the assembly.

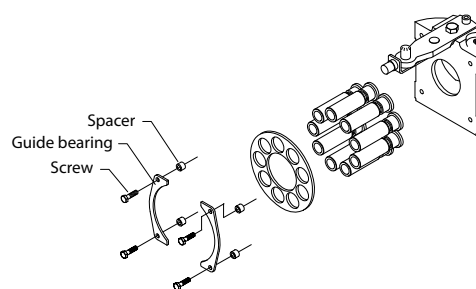
The change involved with the current design update is the removal of the washer from the assembly. This design was initially introduced on the series 90 42 and 130 cc pumps in 1994, and with this change a uniform product family is achieved.

With the removal of the washer, the required length of the assembly screw is reduced. The change in the assembly screw also affects the dimensions of the spacer. Therefore, with this change, the part numbers associated with the assembly screw and spacer have been changed. Some of the assembly screws are parts already maintained in the parts system.

Although the new spacer and assembly screw are directly interchangeable with the previous swashplate assembly components, we recommend that the components be serviced in combination. Since the new spacer may be serviced as a stand alone item, the previous spacer has been obsoleted and will no longer be available as a service part.



Previous hold down design



New hold down design

#### Models affected

94-2xxx,942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

94-2xxx,942xxxx, 95-2xxx, and 952xxxx variable motors

#### Serial numbers

Danfoss Ames production - effective at serial number A-98-48-xxxx

**Service bulletin**

**Part numbers affected**

Component	Displacement	Prior to 98-48	Current
Hold down screw	55 cc	314419 (9007276-0114)	648477
Spacer	55 cc	8000266	8000619
Washer - pumps	55 cc	9009625-0159	N/A
Washer - motors	55 cc	9009625-0129	N/A
Hold down screw	75 cc	9007276-0099	9007276-0114
Spacer	75 cc	8100450	8100777
Washer - pumps	75 cc	9009625-0159	N/A
Washer - motors	75 cc	9009625-0129	N/A
Hold down screw	100 cc	9007276-0099	9007276-0114
Spacer	100 cc	8200216	8200422
Washer - pumps	100 cc	9009625-0159	N/A

**Parts disposition**

Interchangeable

## Service bulletin

### SB-1998-066

#### Products affected

Series 90, 55, 75, and 100cc variable pumps

#### Subject

Charge pump shaft part number change

#### Description

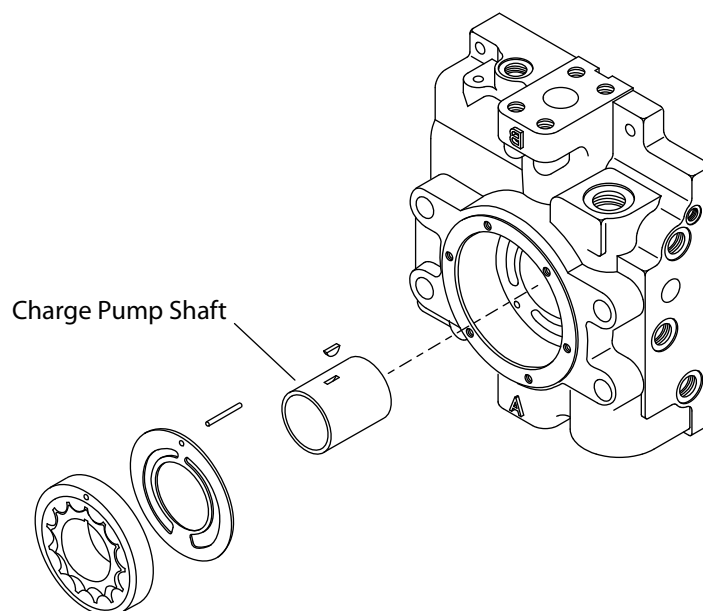
As a product improvement, Danfoss has modified the design of the charge pump shaft used in series 90 55, 75 and 100 cc pumps. This change affects all charge pump sizes (11, 14, 17, 20, 26, and 31 cc) available in the series 90 displacement range.

The series 90 55 cc variable displacement pump uses the same charge pump shaft, regardless of charge pump size (11, 14, or 17 cc). The series 90 75 and 100 cc variable displacement pumps, utilize a common charge pump shaft for the standard size charge pumps (75 cc standard equals 14, 17, and 20 cc and 100 cc standard equals 17, 20, and 26 cc).

A unique charge pump shaft is utilized by series 90 75 cc variable displacement pumps equipped with the 26 cc size charge pump, while the same unique shaft is used by series 90 100 cc variable displacement pumps equipped with 31 cc size charge pumps.

The design modification includes a surface finish change to the charge pump shaft which improves the wear characteristics between the charge pump shaft and the journal bearings in the charge pump cover and end cap.

To assist in identifying this change, Danfoss has released new charge pump shaft part numbers. The new shafts are completely interchangeable with the previous shafts. The new shaft has replaced the previous shaft in new pump assemblies and charge pump service kits. The previous shafts have been obsoleted and are no longer available as a service part. The chart on the next page will assist you in determining the part number changes.



#### Models affected

94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

## Service bulletin

Pump models 9621723 and 9622117 were released with a special charge pump option (code W-26 cc charge pump with special shaft). With this product modification, the charge pump option code for these two models has been changed from W to the standard option (code F-26 cc charge pump). The special shaft part number 8801176 has been obsoleted and replaced with shaft part number 8801178.

### Serial numbers

Danfoss Ames production - effective at serial number A-99-40-xxxxx

Danfoss Neumunster production - effective at serial number N-99-39-xxxxx

### Part numbers affected

Series 90 Size	Charge pump	Previous shaft	New shaft	Charge kit		
				No aux. pad	LH w/aux.	RH w/aux.
55	11	8000267	8801177	8510028	8510029	8510030
55	14	8000267	8801177	8510031	8510032	8510033
55	17	8000267	8801177	8510034	8510035	8510036
75	14	8100476	8801178	8510037	8510038	8510039
75	17	8100476	8801178	8510040	8510041	8510042
75	20	8100476	8801178	8510043	8510044	8510045
75	26*	8100478	8801179	N/A	N/A	N/A
100	17	8100476	8801178	8510046	8510047	8510048
100	20	8100476	8801178	8510049	8510050	8510051
100	26	8100476	8801178	8510052	8510053	8510054
100	31*	8100478	8801179	N/A	N/A	N/A

### Parts disposition

Interchangeable

**Service bulletin**

**SB-1998-070**

**Products affected**

Series 90 100cc variable pumps

**Subject**

Swashplate leveler design change

**Description**

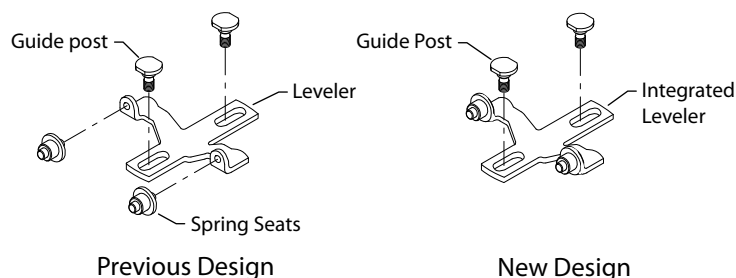
Danfoss has modified the design of the swashplate leveler and spring seat assembly used on Series 90 100 cc pumps. The assembly and serviceability of the pump has been improved by integrating the spring seat directly into the swashplate leveler.

The new design still provides the same predictable and uniform spring deflection during the operation of the pump, but eliminates the potential for the spring seats to separate from the leveler during assembly and servicing. Side cover service kit 8510204 has been updated to include the new integrated leveler, while maintaining the latest side cover assembly and guide posts.

As communicated previously in Service Bulletin 9748, Danfoss recommends that the leveler, spring seat, and guide post parts be serviced as a group on Series 90 100cc pumps with serial dates between 92-12-xxxx to 97-46-xxxx. With the integrated leveler, this is represented as follows;

Swashplate levelers 8200007 and 8200395 and spring seat 8200392 have been obsoleted and will no longer be available as a service part. Guide post part number 8000575 will remain unchanged.

When servicing of the leveler is required on pumps with serial dates after A-97-46-xxxx, the new integrated swashplate leveler/spring seat (8200393) can be used. When servicing pumps with serial dates between A-95-50-xxxx and A-97-46-xxxx, the new integrated swashplate leveler/spring seat (8200393) and guide post (8000575) or the side cover service kit must be utilized. When servicing pumps with serial date between A-92-12-xxxx and A-95-49-xxxx, the side cover service kit must be used. When servicing pumps with serial dates between A-87-02-xxxx and A-92-11-xxxx, the side cover service kit must be used.



**Models affected**

All 96-2xxx and 962xxxx variable displacement pumps

**Serial numbers**

Danfoss Ames production: A-99-01-xxxx.

Danfoss Neumunster production: N-99-22-xxxx.



## Service bulletin

### Part numbers affected

Description	87-02 to 92-11	Replacement Parts
Spring Seat	358846	Order Kit# 8510132
Swashplate leveler	8200007	Order Kit# 8510132
Guide Post	8100353	Order Kit# 8510132
Side Cover	8200011	Order Kit# 8510132
Inserts	Not Applicable	Not Applicable
Side Cover Kit	Not Available	8510132

Description	92-13 to 95-49	Replacement Parts
Spring Seat	358846	Order Kit# 8510204
Swashplate leveler	8200007	Order Kit# 8510204
Guide Post	8100353	Order Kit# 8510204
Side Cover	746560	Order Kit# 8510204
Inserts	Not Applicable	Order Kit# 8510204
Side Cover Kit	Not Available	8510204

Description	95-50 to 97-46	Replacement Parts
Spring Seat	358846	None**
Swashplate leveler	8200007	8200393*
Guide Post	8000510	8000575*
Side Cover	501574	501574
Inserts	8200321	513889
Side Cover Kit	8510204	8510204

\*\* Use 8200393 leveler and 8000575 guide posts

\* Must be replaced together

Description	97-47 to 98-52	Replacement Parts
Spring Seat	8200392	None**
Swashplate leveler	8200395	8200393
Guide Post	8000575	8000575
Side Cover	501574	501574
Inserts	8200321	513889
Side Cover Kit	8510204	8510204

Description	99-01 to Current	Replacement Parts
Spring Seat	None	None
Swashplate leveler	8200393	8200393
Guide Post	8000575	8000575
Side Cover	501574	501574
Inserts	8200321	513889
Side Cover Kit	8510204	8510204

### Parts disposition

Interchangeable- recommend replacement as a group

**Service bulletin**

**SB-1999-019**

**Products affected**

Series90 55, 75, and 100 cc variable pumps

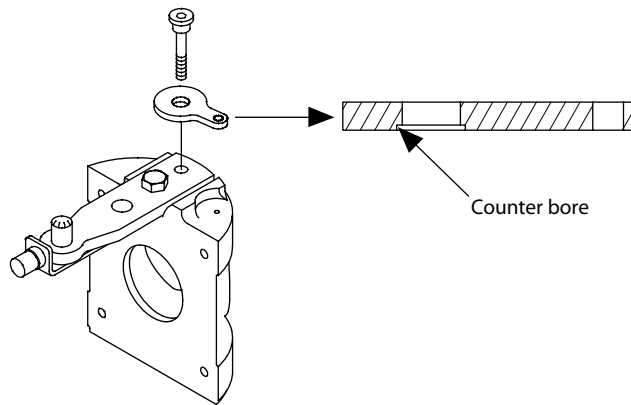
**Subject**

Feedback link change

**Description**

As a product improvement, Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

In 1996, a counter bore was added to the design of our swashplate link to allow for a higher clamping load when assembled to the servo arm. This change was described in SB-1996-009. The counter bore is no longer required on most units due to a design change to the servo arm. Danfoss recommends the old feedback link be used when servicing pumps with dates codes prior to 96-40-xxxx. The old feedback link will remain available as a service part.



**Models affected**

All series 90 55, 75, and 100cc variable pumps

**Serial numbers**

This change became effective at serial number A-96-40-xxxx

**Part numbers affected**

Size	Old part number	New part number
100 cc	8200344	8200413
55 & 75 cc	8000481	11070305

**Parts disposition**

Non-interchangeable

**Service bulletin**

**SB-1999-041**

**Products affected**

Series 90 variable pumps

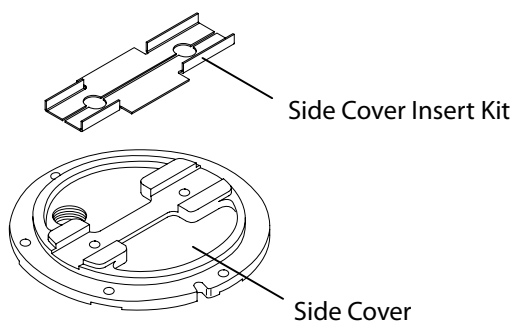
**Subject**

Change to side cover insert material

**Description**

As a continuous product improvement, Danfoss has changed the side cover insert material to improve wear characteristics. The new material is more wear resistant than the previous material.

In order to track this change, new part numbers have been created and the old part numbers will be obsolete.



**Models affected**

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx

**Serial numbers**

Frame size	NMS effective date	Ames effective date
42 cc	N-99-36-xxxxx	N/A
55 cc	N-00-18-xxxxx	A-00-18-xxxxx
75 cc	N-99-26-xxxxx	A-00-38-xxxxx
100 cc	N-99-31-xxxxx	A-00-38-xxxxx
130 cc	N-99-33-xxxxx	N/A
180 cc	N-99-36-xxxxx	N/A
250 cc	N-99-36-xxxxx	N/A

**Part numbers affected**

Frame size	Old part number	New part number
42 cc	506916	513885
55 cc	8000406	513886
75 cc	8000562	513888
100 cc	8200321	513889
130 cc	8300004	513890
180 cc	506914	513891
250 cc	506914	513891

**Service bulletin**

**Parts disposition**

Interchangeable

**Service bulletin**

**SB-1999-057**

**Products affected**

Series 90 100 cc variable pumps

**Subject**

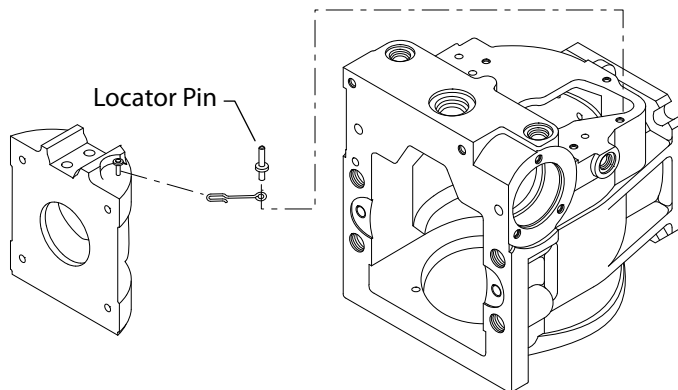
Cage pin change

**Description**

Danfoss has discovered the possibility of a tolerance stack up issue with the bearing locator pin. The purpose of this pin is to keep the alignment of the bearing to the swashplate. If the pin were to come out of its position you may experience erratic pump control and/or loss of performance.

To address this issue we have lengthened the bearing locator pin by 2 mm to increase the minimum amount of engagement.

The new pin is interchangeable with the old pin. Danfoss recommends that the pin be replaced when servicing series 90 - 100 cc pumps. The old pin part number will remain available since it is still being used for the 55 cc and 75 cc pumps.



**Models affected**

All series 90 100 cc variable pumps

**Serial numbers**

This change became effective at serial number A-99-47-xxxxx and N-99-50-xxxxx.

**Part numbers affected**

Old part number	New part number
8801135	8801235

**Parts disposition**

Interchangeable

## Service bulletin

### SB-1999-065

#### Products affected

Series 90 75, 100, 130, 180, and 250cc variable displacement pumps

#### Subject

Hydraulic displacement control gasket and swashplate bearing locator pin retention

#### Description

The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.

In November 1998, Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2- options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.

To address this situation, Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.

The new gasket is completely interchangeable with the previous gasket. Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxx through A-99-49-xxxx. It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.

The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.

The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2-EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.

#### Models affected

95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)

#### Serial numbers

Danfoss Ames 75cc pump production: A-99-50-xxxx.

Danfoss Ames 100cc pump production: A-00-25-xxxx.

Danfoss Neumunster production: N-00-01-xxxx.

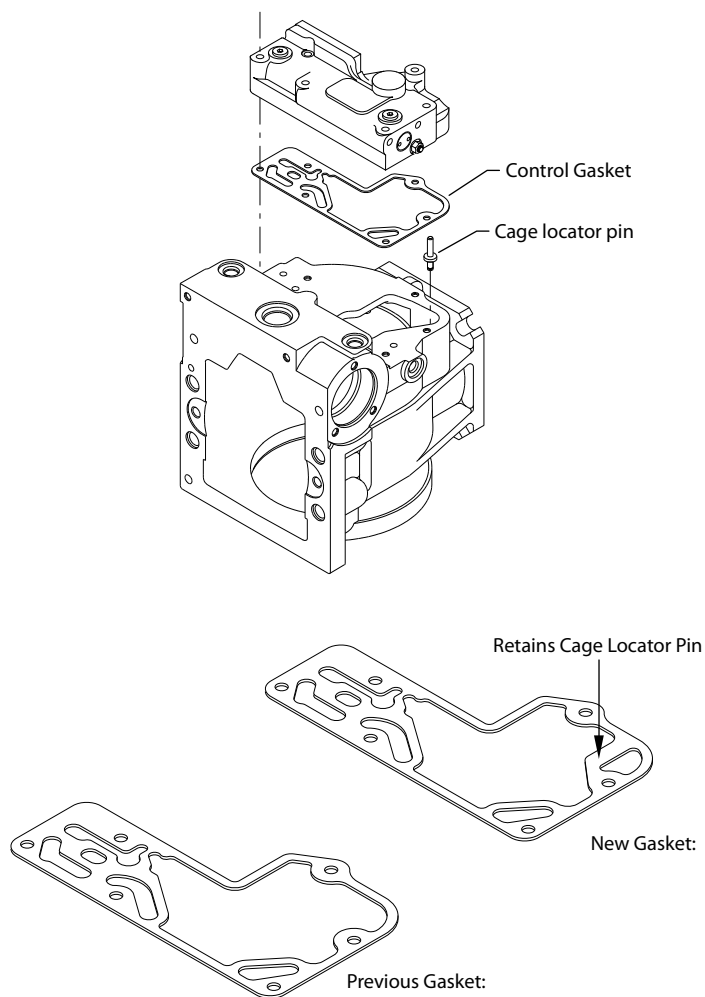
**Service bulletin**

**Part numbers affected**

Previous gasket	New gasket
511608	8801241

**Parts disposition**

Interchangeable



## Service bulletin

### SB-2000-022

#### Products affected

Series 90 75, 100, and 130 cc variable displacement pumps

#### Subject

Displacement limiter screw and servo piston change

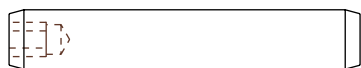
#### Description

Danfoss has identified a product issue affecting a limited number of Series 90 100cc variable displacement pumps built at the Ames, Iowa, USA facility in the time frame of June 2000 through August 2000 (serial date range A-00-23-xxxx up to and including A-00-34-xxxx). This same issue also affects a limited number of Series 90 75cc, 100cc, and 130cc variable displacement pumps built at the Neumunster, Germany facility in the time frame of June 2000 through September 2000 (serial date range N-00-23-xxxx up to and including A-00-39-xxxx).

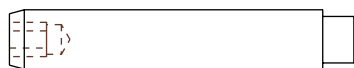
These pumps, equipped with displacement limiters, may have a servo piston with large center drills. These large center drills may allow the displacement limiter screw to thread into the servo piston while turning the screw in against the servo piston while adjusting the pump's displacement. If this occurs, the pump will be mechanically held in stroke by the displacement limiter screw. This situation can only happen during adjustment; it will not occur during normal operation.

Danfoss has introduced a change to the servo piston and the displacement limiter screw to prevent the recurrence of this issue. We have made a change to the servo piston to limit the size of the center drill. We have also changed the design of the service displacement limiter screw from a "flat" point to a "dog nose" point. When servicing a pump that meets the above criteria, you must verify that the displacement limiter screw is of the new "dog nose" version. If it is not, you must replace the displacement limiter screw with the new version. If the pump is not inside the date code ranges and displacements mentioned, you do not need to verify the version of the displacement limiter screws.

To assist in tracking this change, we have issued new part numbers for the servo pistons and displacement limiter screws. Even though this issue did not affect the 42cc or 55cc pumps, the service displacement limiter screw part number will change also to keep one common service part. We do this as the same displacement limiter screw is used on 42cc, 55cc, 75cc, and 100cc pumps.



Old  
"flat point"  
displacement limiter screw



New  
"dog nose"  
displacement limiter screw

#### Models affected

All 95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, and 972xxxx variable displacement pumps with 1, 2, 4, or P displacement limitation option.

#### Serial numbers

Danfoss Ames 100cc production with serial number A-00-23-xxxx up to and including A-00-34-xxxx.

Danfoss Neumunster, Germany production with serial number N-00-23-xxxx up to and including A-00-39-xxxx.



## Service bulletin

### Part numbers affected

Frame size	Old servo piston	New servo piston	Old screw	New screw
42 & 55cc	N/A	N/A	9007712-0814	516677
75 cc	509282	516683	9007712-0814	516677
100 cc	509284	516684	9007712-0814	516677
130 cc	510496	516685	572180	516678

### Parts disposition

Interchangeable

## Service bulletin

### SB-2000-041

#### Products affected

Series 90 55, 75, 1nd 100 cc variable displacement pumps

#### Subject

Common leveler spring shim

#### Description

The date code for the series 90 55cc should have been for a date code of A-92-06-xxxxx not A-02-06-xxxxx.

Danfoss has standardized the leveler spring shim used on all 55, 75, and 100 cc variable displacement pumps. Two different shims were used in the past. One size was for 55 and 75 cc pumps, and the other for the 100 cc pumps. The new shim can be used in all three frame sizes.

Danfoss has issued a new part number for the new shim. The new shim is interchangeable for 55 cc pumps built after A-92-06-xxxxx, 75 cc pumps built after A-96- 19-xxxxx, and 100 cc pumps. For pumps manufactured prior to these dates, you will need to reuse the old shims, as the new shim outer diameter is larger, and this will cause the new shim to not seat correctly in the bottom of the pocket in the end cap. The old shim part numbers are obsolete.

#### Models affected

All 94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps.

#### Serial numbers

Danfoss Ames, Iowa production change was effective at serial number A-00-40-xxxxx

Danfoss Neumunster, Germany production change was effective at serial number N-01-27-xxxxx

#### Part numbers affected

Frame size	Old part number	New part number
55 cc	359042	8801225*
75 cc	359042	8801225**
100 cc	359059	8801225

\* can only be used in pumps manufactured after A-92-06-xxxxx

\*\* can only be used in pumps manufactured after A-96-19-xxxxx

#### Parts disposition

Interchangeable

**Service bulletin**

**SB-2001-013**

**Products affected**

Series 90 100 cc variable pumps

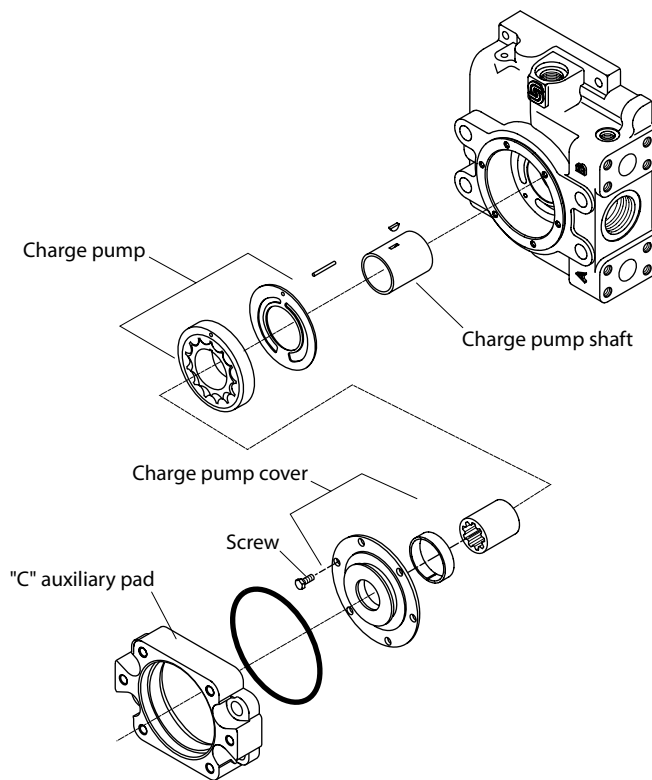
**Subject**

31c charge pump improvements

**Description**

To improve efficiency, the 31cc charge pump assembly has been redesigned.

This change is interchangeable for pumps manufactured after the date code of A-00-10-xxxx if all affected components are replaced. For pumps manufactured before this date, with the CE auxiliary pad option, the auxiliary pad must also be replaced with part number 8200472. The old charge pump components will remain available as service parts.



**Models affected**

96-2xxx, and 962xxxx variable displacement pumps with the 'G' charge pump displacement option. Change was effective at serial number A-01-20-xxxxx.

**Serial numbers**

This change was effective at serial number A-01-20-xxxxx

## Service bulletin

### Part numbers affected

Part description	Previous part number	New part number
Charge pump shaft	8801179	8801210
Charge pump set	8200245	8200479
Charge pump cover	8800868	8801248
Screw	9007210-0604	9007314-0605

### Parts disposition

Interchangeable- see text in **Description**.

**Service bulletin**

**SB-2002-050**

**Products affected**

Series 90 55, 75, and 100 cc pumps

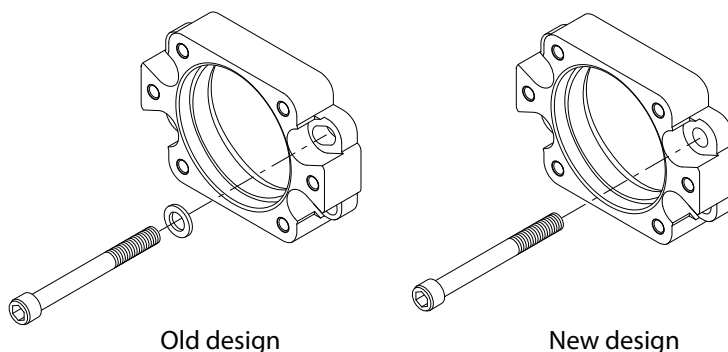
**Subject**

Auxiliary mounting pad

**Description**

As a product improvement, Danfoss has changed the design of the SAE C auxiliary mounting pad to increase strength and reduce corrosion. The old auxiliary mounting pad and new auxiliary mounting pad are interchangeable. The new auxiliary mounting pads are frame size dependent, because they do not have slotted mounting holes. The auxiliary mounting pad screws remain the same, but they do not require washers.

The old auxiliary mounting pad is obsolete and no longer available as a service part. The washers will remain available.



**Models affected**

Series 90 55, 75, and 100 cc pumps with SAE C auxiliary mounting.

**Part numbers affected**

The new auxiliary mounting pads are frame size dependent and do not use washers.

Frame size	Old aux-pad part number	New aux-pad part number	Old washer part number
55cc	723205	8000643	5000602
75cc	723205	8100848	9009625-0132
100cc	723205	8200469	9009625-0132

**Parts disposition**

Interchangeable

## Service bulletin

### SB-2005-011

#### Products affected

Series 90 42 through 100 cc pumps

#### Subject

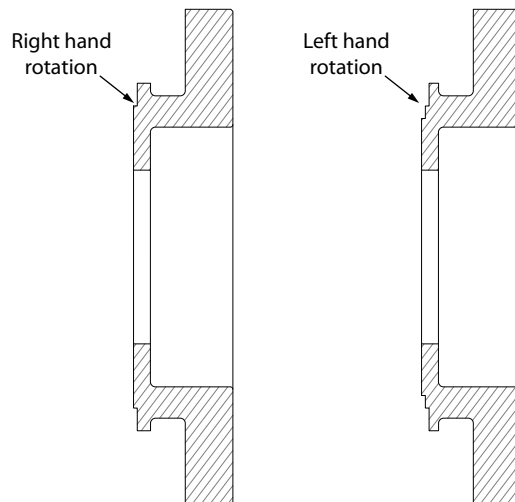
Auxiliary flange charge pump cover

#### Description

Danfoss will no longer mark auxiliary flange charge pump cover with an "R" for right hand rotation or an "L" for left hand rotation.

The pilot surface has changed on the covers. The right hand rotation charge pump cover will have 1 step and the left hand rotation charge pump cover will have 2 steps. Refer to the drawings below for example.

The part numbers of the charge pump covers will not change.



#### Models affected

Series 90 42 thru 100 cc pumps with auxiliary pad options.

#### Serial numbers

This change became effective at serial number A-05-17-xxxxx

#### Part numbers affected

None

#### Parts disposition

Interchangeable

## Service bulletin

### SB-2007-018

#### Products affected

Series 90 100 cc pumps

#### Subject

Pump redesign

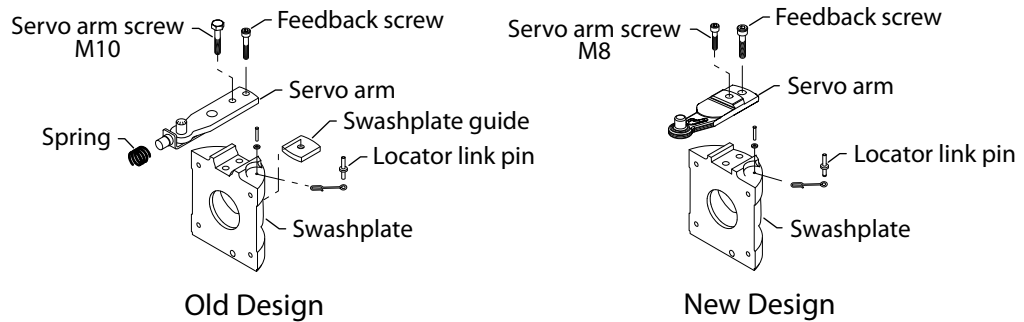
#### Description

As a global improvement, the series 90 100cc pump has redesigned the following components: servo arm, swashplate guide, pump housing, shaft seal assembly, cradle bearing, and servo arm screw.

All parts are non-interchangeable with the exception of the shaft seal assembly. Model numbers and order codes will not be changed.

<b>Servo arm</b>	A "one piece" servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part.
<b>Swashplate guide</b>	The swashplate position is now guided by the fit between the servo arm and the pump housing. A "shelf" on the servo arm fits under a boss in the housing to provide a fixed clearance swashplate hold-down. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The swashplate guide that was bolted to the bottom of the swashplate has been removed. The separate swashplate guide will remain available as a service part.
<b>Housing</b>	The housing is modified internally to provide the servo arm pivot. Also, the cradle and side cover radii are reduced. Some customers may notice cosmetic external changes. The old housing is obsolete and no longer available as a service part.
<b>Shaft seal assembly</b>	The shaft seal assembly is interchangeable, but the piece parts are not. The new lip seal has a smaller O.D. and the I.D. of the seal carrier changed accordingly. The old shaft lip seal will remain available as a service part.
<b>Overhaul seal kit</b>	A new overhaul seal kit has been created that will service both old and new design pumps. The new seal kit also has additional O-rings and seal nuts required for a more complete repair. The old seal kit is obsolete and no longer available for service.
<b>Cradle bearing</b>	The new design is cold formed with the positioning pin now integral with the bearing. The old cradle bearing will remain available as a service part for a period of time.
<b>Screws</b>	The screw that holds the servo arm to the swashplate has changed from a M10 to a M8 screw. The other screw is a feedback link screw which changed from 50mm long to 45mm long. See drawing for details.

**Service bulletin**



**Models affected**

Series 90 100cc pumps

**Serial numbers**

This change became effective at serial number A-07-28-xxxxx

**Part numbers affected**

Description	Old part number	New part number
Servo arm	518629, 8200268	521607
Servo arm screw	536649, 9007276-0111	519150
Seal carrier assembly	510017, 8200309	521722
Cradle bearing	305839/P, 8200053	11131109
Swashplate guide	8800669	No replacement needed
Compression spring	673145, 8200058	No replacement needed
Shaft seal	9008000-0114	519021
Feedback screw	9007375-0032	9007375-0044
Standard housing	503424	521605
PPU housing	726554, 8200332	11002463
Side cover	501574	11000790
Seal carrier assembly	510017, 8200309	521722
Swashplate assembly	8200192	8200618
Swashplate	8200232	11002493
Overhaul seal kit	82020530	11035669

**Parts disposition**

Non-interchangeable



**Service bulletin**

**SB-2007-027**

**Products affected**

Series 90; 55, 75 , and 100 cc pumps

**Subject**

SAE A auxiliary mounting flange

**Description**

Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on all its series 90 pumps. All manufacturing locations producing these pumps will be changed to this configuration.

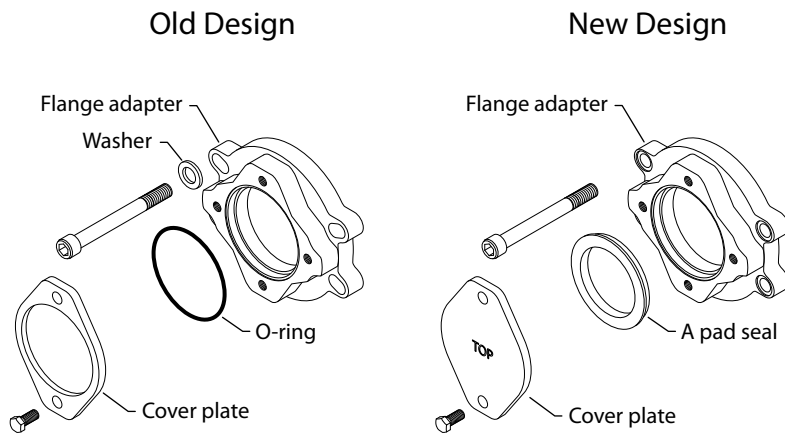
The improvement comes in the form of a more robust sealing geometry with a larger cross- section O- ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring.

The Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.103]. x 82.22mm [3.237]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

The pumps will now be supplied with the donut style A pad seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the A pad seal.



**Models affected**

All series 90; 55, 75, and 100 cc pumps with SAE“A” auxiliary mounting flanges.

**Serial numbers**

This change became effective at serial number A-07-05-xxxxx

**Service bulletin**

**Part numbers affected**

Description	Old p/n	Used on	New p/n	Used on
Flange adapter	8000262	55 cc	8000641	55 cc
Flange adapter	8800172	55, 75 & 100 cc	8000641	55 cc
Flange adapter	8800172	55, 75 & 100 cc	8100846	75 cc
Flange adapter	8800172	55, 75 & 100 cc	8200467	100 cc
Washer	9009625-0132	55, 75 & 100 cc	NA	NA
O-ring	9004104-0420	All sizes	9004104-1520	All sizes
A Pad seal	NA	All sizes	4800482	All sizes
Flange cover	9802336	All sizes	4460586	All sizes

If the new auxiliary flange adapter is used, the new o-ring or A-pad seal and cover must also be used.

**Parts disposition**

- Interchangeable- if new o-ring or A-pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

**Service bulletin**

**SB-2007-051**

**Products affected**

Series 90; 55, 75 , and 100 cc pumps

**Subject**

SAE C auxiliary mounting flange

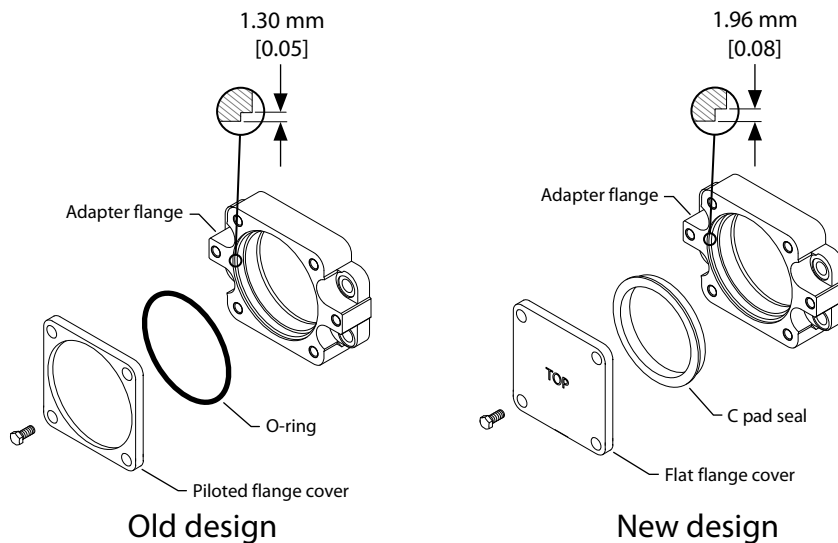
**Description**

Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.103] x 120.32mm [4.737]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new C pad seal.



**Models affected**

All series 90; 55, 75, and 100 cc pumps with SAE“C” auxiliary mounting flanges.

**Serial numbers**

This change became effective at serial number A-08-19-xxxxx and N-09-30-xxxxx

## Service bulletin

### Part numbers affected

Description	Old part number	Used on	New part number
SAE C flange	8200469	100cc	8200515
SAE C flange	8100848	75cc	8100897
SAE C flange	8000643	55cc	8000740
O-ring	9004100-0480	55, 75, 100cc	9004104-1580
C pad seal	N/A	55, 75, 100cc	8801062
Flange cover	8800406	55, 75, 100cc	8801060

[If the auxiliary flange adapter is used, the new o-ring or C pad seal and cover must also be used.](#)

### Parts disposition

- Interchangeable- if new o-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

**Service bulletin**

**SB-2007-055**

**Products affected**

Series 90; 55, 75 , and 100 cc pumps

**Subject**

SAE B auxiliary mounting flange

**Description**

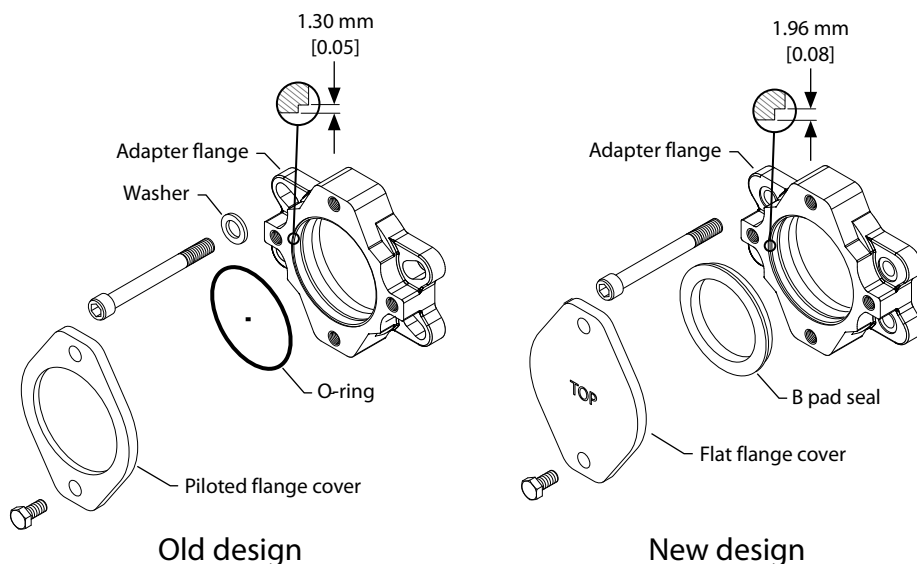
Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.103] x 94.92mm [3.737]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and part number 9004104-1540 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new B pad seal.



**Models affected**

All series 90; 55, 75, and 100 cc pumps with SAE“B” auxiliary mounting flanges.

**Service bulletin**

**Serial numbers**

This change became effective at serial number A-08-19-xxxxx

**Part numbers affected**

Description	Old part number	Used on	New part number	Used on
Metric B flange	8800983	55, 75 & 100 cc	8200540	100 cc
SAE B flange	8800173	55, 75 & 100 cc	8200468	100 cc
SAE B flange	8800173	55, 75 & 100 cc	8100847	75 cc
Metric B flange	8800983	55, 75 & 100 cc	8100938	75 cc
SAE B flange	8800173	55, 75 & 100 cc	8000642	55 cc
SAE B flange	8000263	55, 75 & 100 cc	8000642	55 cc
Washer	9009625-0132	55, 75 & 100 cc	N/A	N/A
O-ring	9004104-0450	55, 75 & 100 cc	9004104-1540	55, 75 & 100 cc
B Pad seal	N/A	55, 75 & 100 cc	8801061	55, 75 & 100 cc
Flange cover	4460370	55, 75 & 100 cc	8801059	55, 75 & 100 cc

If the new auxiliary flange adapter is used, the new o-ring or B pad seal and cover must also be used.

**Parts disposition**

- Interchangeable- if new o-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

**Service bulletin**

**SB-2009-035**

**Products affected**

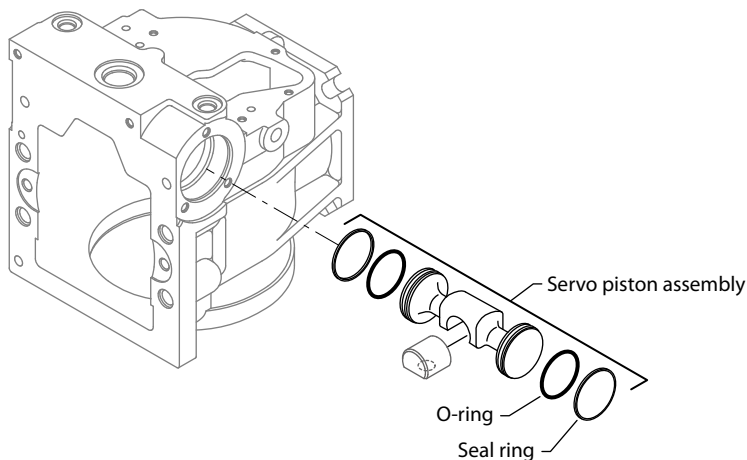
Series 90 75 and 100 cc pumps

**Subject**

Change supplier of servo piston assemblies

**Description**

The supplier has changed for servo piston assemblies used in Series 90 pumps, size 75 and 100 cc. These assemblies include the servo piston, O-rings and seal rings. The part number of the servo piston assemblies has changed to better track this change. The new servo piston assemblies are completely interchangeable with the old servo piston assemblies. The old part numbers will become obsolete and not available for service.



**Models affected**

Series 90 75 and 100cc pumps.

**Serial numbers**

This change went into effect at serial number A-09-25-xxxxx

**Part numbers affected**

Description	Old part number	New part number
Servo piston assembly, 75cc	516683	11041752
Servo piston assembly, 100cc	516684	11044943

**Parts disposition**

- Interchangeable
- Use parts in stock
- Order replacement parts
- Revise existing part orders

**Service bulletin**

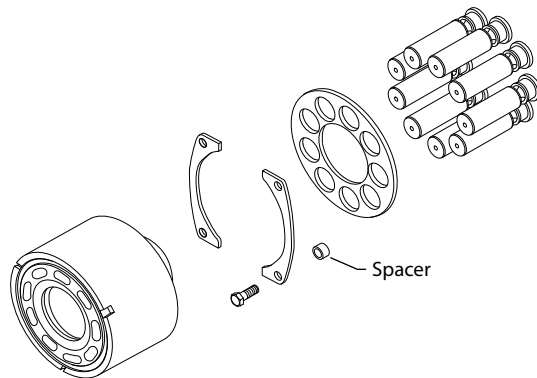
**SB-2009-038**

**Products affected**

Series 90 55, 75 and 100 cc pumps

**Subject**

The supplier for the spacers, used for slipper hold down spacing in series 90 pumps, has changed. The new part is physically and functionally interchangeable in all applications. The part numbers have changed to better track this change. The old part numbers will become obsolete and not available for service.



**Models affected**

Series 90 55, 75 and 100 cc pumps

**Serial numbers**

This change became effective at the following serial numbers:

- A09-38-XXXXX for 55cc (14-Sep-2009)
- A10-04-XXXXX for 75cc (22-Jan-2010)
- A09-38-XXXXX for 100cc (12-Aug-2009)

**Part numbers affected**

Spacer	Old part number	New part number
55cc	8000619	11065864
75cc	8100777	11065865
100cc	8200422	11065866

**Parts disposition**

Non-interchangeable



## Service bulletin

**SB-2009-049**

### Products affected

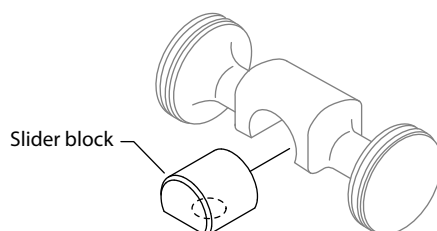
Series 90 100cc pumps

### Subject

Slider block supplier change

### Description

The supplier for the slider block used in series 90 100 cc pumps has changed. The new slider block is physically and functionally interchangeable in all applications. The part number of the slider block has changed to better track this change. The old part number will become obsolete and not available for service.



### Models affected

All series 90 100cc variable displacement pumps

### Serial numbers

This change became effective at serial number A09-35-XXXXX. (28 August 2009)

### Part numbers affected

Description	Old part number	New part number
Slider block	8200225	11061908

### Parts disposition

- Interchangeable
- Use parts in stock

## Service bulletin

### SB-2009-073

#### Products affected

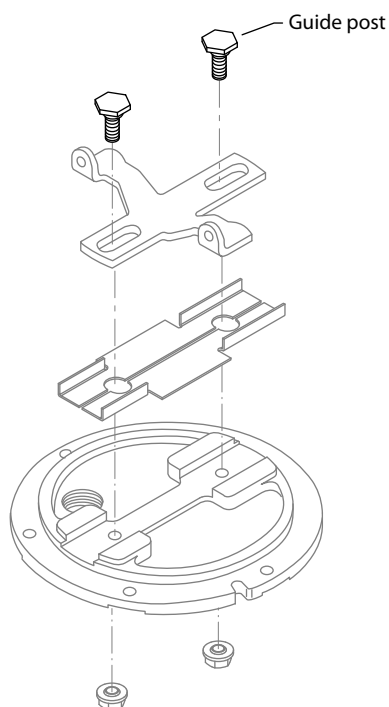
Series 90: 75 and 100 cc pumps

#### Subject

Supplier change for guide posts

#### Description

The supplier has changed, for the guide posts used in series 90: 75 and 100 cc pumps. The new guide posts are interchangeable with the old guide posts. A new part number has been assigned to the new guide post to better track this change. The old part number has become obsolete and not available for service.



#### Models affected

Series 90: 75 and 100cc pumps

#### Serial numbers

This change became effective at serial number A-09-50-xxxxx (21 December 2009)

#### Part numbers affected

Description	Old part number	New part number
Guide post	8000575	11056531

## Service bulletin

### **Part numbers affected**

Interchangeable

**Service bulletin**

**SB-2013-011**

**Products affected**

Series 90: 42-250cc pumps

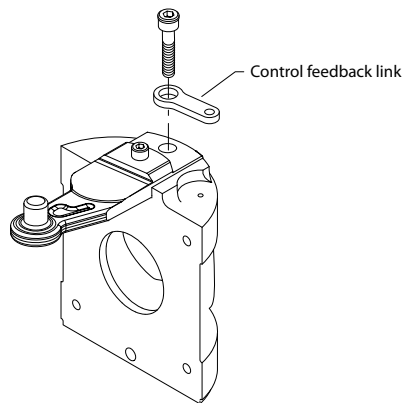
**Subject**

Feedback link - control

**Description**

Danfoss has changed to a global supplier for the control feedback links used in Series 90 42-250cc pumps.

Old parts and new parts are completely interchangeable. Part numbers will be changing for tracking purposes. Old parts will become obsolete and no longer available as a service part.



**Models affected**

Series 90: 42-250cc pumps

**Part numbers affected**

Control feedback link	Old part number	New part number
42cc pumps	648600	11070304
55 & 75cc pumps	8000602	11070305
100cc pumps	8200413	11070306
130cc pumps	340091	11070307
180 & 250cc pumps	747451	11070308

**Parts disposition**

- Interchangeable
- Use parts in stock

**Service bulletin**

**SB-2015-005**

**Products affected**

Series 90: 42-250cc pumps

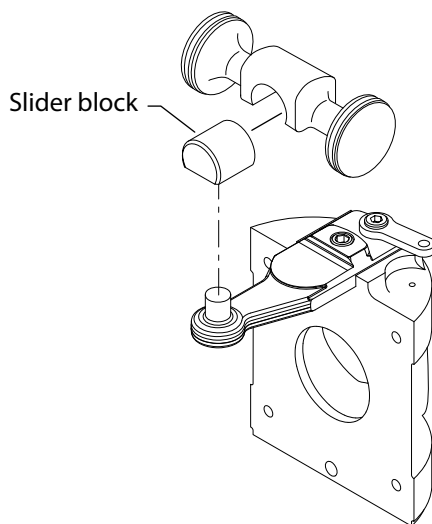
**Subject**

Slider block supplier change

**Description**

The supplier has changed for Series 90 pump slider blocks. Parts are completely interchangeable.

Part numbers have been changed for tracking purposes. As a result old part numbers will become obsolete and no longer available as service parts.



**Models affected**

Series 90 42-250cc pumps

**Part numbers affected**

Description	Old Part Number	New Part Number	Effective Date
Slider block 42 NMS	648303	11116314	N/A
Slider block 55-75 NMS	8800750	11116313	6-Aug-2014
Slider block 55-75 AMS	11061964	11116313	6-Sept-2014
Slider block 100 AMS	11061908	11116312	10-Mar-2014
Slider block 100 NMS	756197	11116312	20-Feb-2015
Slider block 130 NMS	11000317	11116309	9-Dec-2014
Slider block 180-250 NMS	746479	11116308	24-Oct-2014

**Parts disposition**

- Interchangeable
- Use parts in stock

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